THE READER

A REVIEW OF LITERATURE, SCIENCE, AND ART.

No. 192, Vol. VII. Saturday, September 1, 1866. PRICE TWOPENCE. Stamped Edition, 3d.

ROYAL INSURANCE COMPANY.

The Annual Meeting was held on Friday, the 10th inst., Charles Turner, Esq., M.P., in the chair.

The following is an epitome of the Report:—

"FIRE BRANCH.

"The progress of the Company, as respects the amount of business effected, has been satisfactory, the returns of duty published by Parliament, on the motion of the Chairman of this Company, exhibiting by far the largest measure of increase which the Company has ever experienced.

"The total net amount of Fire Premium for the year, after deducting guarantees, is £414,733 13s.

"LIFE BRANCH.

"Turning now to the Life Branch, it remains to be reported that the progress has been marked by unchecked success. This will be made clear by one or two statistical expositions.

"Taking the four previous quinquennial periods, it is found that the first, from 1845 to 1849 inclusive, commenced with a sum assured for--

Year 1845 of £23,349, and ended the period with a total sum assured of				£272,796
The Second	1850—54			
Do.	1850	... 95,650...	do.	do. 733,408
The Third,	1855—60			
Do.	1855	...206,514...	do.	do. 1,655,678
The Fourth,	1860—64			
Do.	1860	...449,242...	do.	do. 3,439,215

And now the first year of the fifth like period—viz., 1865—the Company has granted assurances for £886,663, nearly twice the amount at the commencement of the last quinquennial period.

"If, therefore, the result of the total five years, ending in the year 1869, were to have a corresponding increase with the previous periods of five years each, the amount of business that would be effected in the quinquennial period now running would be more than has ever been on record in any Insurance establishment in this country.

"The Directors have likewise to report that the Life funds have increased by the sum of £103,146, the accumulated funds of this department now amounting to £740,458. As an addition of, at least, £100,000 per annum to these accumulations during the next ten years may now be fairly anticipated, it is within reasonable expectation that during this period the Life funds will approach nearly to £2,000,000 sterling.

"The Directors propose to the Proprietors that a dividend be declared of 3s. per Share, and a bonus of 4s. per Share, together 7s. per share, free of income tax.

"It is a matter of satisfaction to state that after withdrawing the amount of this dividend and bonus from the profit and loss account, a credit balance will still remain to that account of no less than £62,076 9s., in addition to the reserve fund, which, by the augmentation of the year, now reaches the sum of £116,913 2s. 10d."

This Report was unanimously adopted.

PERCY M. DOVE,
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SATURDAY, SEPTEMBER 1, 1866.

CURRENT LITERATURE.

THE EPISCOPAL CHURCH IN CONNECTICUT.

The History of the Episcopal Church in Connecticut. From the Settlement of the Colony to the Death of Bishop Seabury. By E. Edwards Beardsley, D.D. 8vo, pp. xxx., 469. (New York, Hurd and Houghton; London, Stevens Brothers.)

THAT the history of the leading religious bodies in America has yet got to be written is in no way surprising. They do not seem old enough to have an ecclesiastical history. When we take the portly octavo containing the history of the Episcopal Church in Connecticut into our hands, we confess to a surprise at so much antiquity. We go back here to events which belong to the settlement of New England two hundred and fifty years ago; we live again with the Puritans; Americans may feel the rude enthusiasm of other days; enter into forgotten controversies; trace the origin of many of their peculiar customs. Though the Church of England established herself very early in some parts of the colonies, in New England hardly anything was known of it till 1722, when missionary labours were begun in Stratford, and a little later at various other points. And yet it has surprised us that this communion, which is still missionary in this country as compared with its developed power in England, is of so recent date. It accounts in part for the fact that, though powerful in the wealth and position of the people belonging to it, the Episcopal Church is much inferior in numbers to other denominations; though even within the last twenty-five years, so rapid has been the increase, this body is said to have doubled itself in Connecticut; and when we add, that those adding themselves to it seldom go away, its rapid extension and its strong and increasing conservative influence in American society are easily accounted for.

The history of this body in Connecticut, where, next to Massachusetts, Puritanism had the strongest hold, and where its increase was largely due to the persecution of its opponents, cannot but be interesting; and it is a work which may be said in a degree to command its readers, since, however badly done such a work may be, and this is well done, there are many of all parties who are drawn irresistibly to it. Such a volume becomes a leading work on American history, because religion, equally with political opinion, has had a large share in making them what they are as a people. Its account of the rise of a leading body, destined certainly to a large influence in the future of America, and its only bulwark against the ceaseless and silent activity of the Church of Rome, has interest alike for friend and foe. Then, in all religious bodies, this early beginning has an influence upon the later growth, and the early struggles of Churchmen in Connecticut may yet be traced in the opinions which each party has of the other, and in the peculiar features of the Church in that diocese. No one can understand the religious history of that State without reading this volume, and taking into account the singular position in which the Episcopal Church was placed, and the eminent qualities of its first bishop. In addition to this, its position during the Revolution deserves attention. The condition of Churchmen, as a necessary consequence of their attachment to the Mother Church, made them Loyalists; they were honestly so; and probably no body of persons in history has been more systematically traduced by historians than the men who, in time of rebellion, were devotedly attached to what seemed to them law and order. Dr. Beardsley aptly says: "The events of the last four years in our country must teach us to entertain a higher respect for the men who did not at once join in the cause for independence, violate their oaths of allegiance, and disown submission to the long-established government." This portion of the volume sheds much light upon the political side of the Revolution, being taken from private diaries and papers.

Hence this work has a wider application than the history merely of the Episcopal Church in Connecticut. It is to a large extent the history of those times from a new point of view. It has been the fashion of Americans to write the history of their country simply from the Puritan side; and even their geographies and reading books in the public schools have been deeply saturated with the peculiar inspiration of Plymouth Rock. This is changing; but most of those who are now adults were educated with the idea that civil and religious liberty was their great inheritance from the New England Pilgrims. Dr. Beardsley's volume shows that they were no better here than their enemies were in England; and that the same persecutions which were odious to them across the water were applied relentlessly to their opponents here. This part of the book is ably executed, and there is no trace of the bitterness of religious zeal. Next in value, considered from the point of public and general importance, is the position of the Episcopalians in the Revolution which we have already indicated. To Churchmen the whole work has a special interest, as detailing step by step how their body grew to its present size. Here one sees the missionaries toiling up and down the Connecticut valleys, hardly supporting themselves upon their scanty livings; here are the first beginnings of parishes which have now become formidable; and the zeal and simple, honest, patient fidelity of such men as Dr. Samuel Johnson, and the Rev. John Beach, and the Rev. Richard Mansfield, light up every page with marked traits of character, and the success of self-denying labour. In the Revolution the Episcopal body was nearly swept away; many families emigrated with their pastors; those who remained were as sheep without a shepherd, there being neither bishop nor priest to look after them; and when the war was over, all that had seemed so full of promise was a mere wreck. It is a singular feature of this history, that the Episcopalians were in Connecticut over fifty years before they could obtain a bishop. It was a request urged by the clergy with every method that honest men could use; but the Home Government was so little controlled by religious statesmen, and so largely influenced by leading men in the colonies who saw the devil in Episcopacy, that no bishop was consecrated for America until 1787, though Bishop Seabury had been consecrated in Scotland in 1784, being prevented from receiving consecration in England by political influence. From this time onward the volume is taken up with the organization and union of the different parts of the Church then existing in the country, and in this period was settled the public policy which has since ruled this communion. It is a marked feature of the times, that the Episcopal Church is now upon the eve of changing its principles of organization as a federative body from being a collection of dioceses meeting together once in three years for the purpose of general legislation, the plan which the first bishops settled upon, to the provincial system, by which the different larger sections may multiply dioceses within themselves, and raise one of their bishops to the position of archbishop. The rapid growth of the body since 1835 has compelled this; and though the step has not yet been taken, there is every symptom that the plan will be carried out at the next general convention. In such a case there would be the New England, the New York, the Middle State, the Southern, the Rocky Mountain, and the Western Provinces. These provinces would care for the Church each within its own section, and delegates from them would meet in general convention at stated times. The public opinion is rapidly changing in favour of small dioceses, and it would be no strange event if Connecticut in less than three years were divided into three new sees.

The literary merits of this volume we can heartily commend. The author's style is not perfect. He cannot easily manage a very long sentence. There is the appearance of conscious labour, and there is a certain strong ruggedness; and when the author tries to write elegantly his poverty of imagination is painfully evident. He is one of those writers who is always improving. Like Robert Southey, he can write better the longer he uses the pen; and we are not sure but this continued mending of style is a better trait than that luxuriousness which often leads an author to lose himself and his subject altogether. Strong, straightforward common sense, not elegance, nor hardly an occasional felicity, mark Dr. Beardsley's pages. He never affects elegance, however; nor does he use big words—the prevailing fault of Dean Stanley. He has the singular merit of writing from so intimate a knowledge of his subject that the style is the last thing thought of. He has infused his own personal feeling into it; and hence it is the earnest, painstaking research and scholarly devotion of the man which shine through and vivify his words. Any one who has attempted to reduce documents and facts into a homogeneous narrative, knows how difficult it is to write well; but Dr. Beardsley does write well, and he leads the reader rapidly along from page to page. There is no stopping to rest. He understands, too, how to weave his narrative together in the words of the actors themselves, an art which is a leading excellence of Motley's histories. He makes you live in the times of which he writes. Dr Samuel Johnson stands out upon his pages as distinctly as if his portrait had been inserted in the volume. His historical characters, painted in their own words and deeds, are not skeletons nor puppets; and many another leader in those times walks forth now as he was seen by his contemporaries. We understand that the author has received such encouragement since the first publication of this volume, which completes the history down to the death of Bishop Seabury, that he is now engaged in carrying the work down to the death of Bishop Brownell. There is a noble task before him, and we know of no one who has so many qualifications for the faithful and successful prosecution of it. He seems to us to have so far shown himself, as a writer, of excellent judgment, impartial temper, and strict historical tastes and aptitudes, and he occupies an untrodden field.

LETTERS ON ENGLAND.

Letters on England. By Louis Blanc. Translated from the French by James Hutton, and Revised by the Author. 2 Vols. Post 8vo, 16s. (Sampson Low and Co.)

MR CARLYLE says somewhere, despairingly, "When will the aristocracy retire to their beds for three days, and consider themselves?" The time when such meditation would have availed the aristocracy is pretty well over. Democracy, on the other hand, has too much to do to betake itself to so long a slumber, but it *does* go to the seaside, and if it would pass its time there in reading books which hold up to it something like a mirror, even Mr. Carlyle would scarcely complain. Such books written by Englishmen are difficult, if not impossible, to find. The advice we give to each other is generally disguised under the shape of fiction, and made so palateable by the aid of exaggeration that we do not know whether we are laughing at or with each other. But every now and then we get a glimpse of England as viewed by foreigners, and when the foreigner does not make those absurd mistakes which gratify our pride by making us feel that we cannot be understood, no better course of instruction for adults can be desired than a course of his letters.

M. Louis Blanc unites all the requisites of

a national critic. He has a profound respect for our institutions; he has lived among us long enough to comprehend something of our Constitution; he has been a spectator of our Olympian games; and he knows how to write our titles correctly. At the same time, though an exile, he is clearly of opinion that France after all is the "great nation," and he does not pour forth those eloquent panegyrics we are so delighted to quote from the Comte de Montalembert. The "Letters" extend over a period of about two years—the years 1861 and 1862. They might almost have been written for immediate publication, epitomizing as they do the public journals and the events of the hour. The Marquis of Bath might have hoped that his remark on the death of Cavour, "He violated every law, human and divine," would have been buried in the small print of Parliamentary reports; but the ear of the intelligent foreigner caught the sound, and it is here. Nor perhaps would the Palmerstonian candidate particularly like so faithful a reporter of the memorable speech, "I decline to anatomise the nature of our quarrel with China. Whether we are wrong or whether we are right, is quite the same to me. All that I know is, that our national honour and our national interest require that if we have begun by being unjust, we should go on with being unjust." Perhaps there is something too much of this tendency to record little slips of the tongue and pen; but as the book bears throughout the character of a diary, the idea of any malicious object must be discarded. Still, M. Blanc did not write without a distinct object, and his reasons for it are most amusing. England, it seems, regards France much as America regards England:—

England takes note, day by day—I had almost said, hour by hour—of acts and projects. Do we do as much with respect to England? The difference is flattering for us, I admit, but more flattering then profitable. Certain it is, that people here are not a little surprised at the very slight attention which the French press in general accords to the affairs of other countries. The omission is only too manifest, and is in every way to be regretted. If, in establishing a new journal, it is part of your programme to fill this void, I sincerely wish you every success; and if you think I can be of any service to you, I place myself entirely at your disposal.

But the remedy for all this, M. Blanc is candid enough to confess, lies rather in the power of France than of England. At a time when the relations of France to the whole of Europe are undergoing a complete change, it may be worth while to repeat the conclusions of our author, which have lost none of their force though five years have elapsed since they were written:—

Since, on the one hand, the alliance of France and England is of inestimable value, and on the other, England is excessively suspicious, wisdom demands, not that France should systematically and cowardly yield to her susceptibilities, but that she should become acquainted with them and make allowance for them, and should study, so far as is reasonable, to humour them. The day that the English cease to distrust France will be a great day for the world!

But when will that happy moment arrive? It will arrive when public opinion in France shall have recovered her voice, and when that voice shall make itself heard without constraint; when our policy, being—as it is the case here (thanks to public discussion)—covered with no veil, England will be placed in a condition to regulate her feelings with regard to us by a clear appreciation of our intentions, ideas, and projects. Under the present system, the English are afraid of everything, because they are kept in ignorance of everything. Every night, they lie down to rest without being quite certain that they will not suddenly be roused by the roar of cannon, because, in fact, the morrow depends upon decisions which, not falling under daily criticism, remain unknown and hold the world in suspense.

There is in that a great misfortune, a very great misfortune, for France, for England, for Europe, and, I will add without hesitation, for the French Government itself, which is thus exposed to all sorts of erroneous suppositions, offensive interpretations, and unjust suspicions.

No, so long as the system to which France is at present subjected is not sufficiently open, let it not be hoped that the English will be brought to have confidence in us. So long as the light of day does not shine in France, they will consider—and it is a thing that cannot be too deeply regretted—their alliance with us as an unnatural marriage between publicity and silence, between light and darkness, and they will always fear that they are playing the part of dupes.

There can be no thoroughly sincere, no thoroughly frank and durable alliance, except between free England and France restored to freedom.

Amongst other English phenomena that M. Blanc thoroughly understands is that of the Lord Mayor, and he is perfectly aware that to do so is the privilege of few Frenchmen:—

In France we imagine that the Lord Mayor is a very mighty personage, a Jupiter Tonans of the City. It is one of our errors, and I know only one man in England who shares it with us—and that is the Lord Mayor himself. Ask of a merchant of any eminence, or of a first-class banker, to let you make him Lord Mayor, and see what sort of reception you will get from his offended pride! They leave all that to the tribe of petty shopkeepers.

The more so, that the intellectual and social qualities required of a Lord Mayor are not of a very high order. It is not expected that his Lordship should have the understanding of a William Pitt, or the refined elegance of a Brummel, or the deportment of a George IV. He may wear his official robes, if it please him, after the manner of a beadle, and speak French like Alderman Wood, of whom it is said by the wags, that at the time of his visit to the Parisians he wrote upon his calling cards as an unexceptionable translation of the words "The late Lord Mayor," the following phrase, so alarming for those who believe in ghosts, "Feu le lord-maire."

His function is to give—

Immense dinners, at which people devour basins of turtle-soup, and drink, in the shape of champagne, a part of the duty levied on coal. And observe how all men are equal before his dinners. It is not because he expects to entertain the Lord Treasurer at his table to-morrow, that his lordship will offer meagre fare to-day to Smith, the hatter round the corner; no, indeed! The Lord Mayor's hospitality is bound to be as liberal towards the inhabitants of Threadneedle-street as towards those of Belgravia. His popularity depends upon the appetite of gourmands of every class, of whom he is the solemn, official, and eternal host. The character of his duties is essentially pantagruelic. The Lord Mayor was invented to realize the conception of Rabelais. His administration means indigestion.

And he leaves him about to start—

"Dans ce beau carrosse
Où tant d'or se relève en bosse,

in grand carnivalesque pomp, to take before the Court of Exchequer in Westminster Hall the solemn oath that he will keep—a good cook."

From the Lord Mayor's Show we pass to the front of Newgate, which reminds us that the Bill for performing executions in private still exists in the shape of a Report alone. A great part of the book is taken up with remarks upon the unfortunate attitude assumed by so large a portion of the nation in the great American quarrel. This it will be convenient for us to forget as speedily as we can. But here is a silent monitor before whom we need not blush, whilst we may feel our own littleness. The most satisfactory reminiscence called up here is the feeling of the nation towards Garibaldi, "vanquished, blamed, and admired." It is, perhaps, the first instance in which public opinion in England has ever been boldly pronounced in favour of the unsuccessful. So little could such a wonder be expected that even the *Times* was deceived:—

The *Times* is thought to represent public opinion in this country. Sometimes it does represent it, sometimes it makes it; but frequently, after having in vain attempted to guide it, the *leading* paper lays down its arms, denies on the morrow what it affirmed on the day before, burns what it had worshipped, adores what it had burnt, and recovers, by the audacious humility of its sudden tergiversation, its empire for an instant in jeopardy.

For the present the *Times* scandalizes with the flourish of its braying trumpets all who are afflicted by the mournful victory which Italy has gained against herself; but a few days hence, perhaps, when better instructed as to the real state of men's minds, the *Times* will wear mourning for the great warrior whose defeat it celebrates to-day.

Thus wrote M. Blanc on the 4th of September, 1862. Nor was he wrong, for on the 6th he could say:—

To-day, how different is its language! It is not far from proclaiming Garibaldi absolutely inviolable. It calls him by his true name, the founder of regenerated Italy. It is indignant at the bare idea of such a man having to appear before a judgment-seat. It affirms, almost with emotion, that there is not a nerve in the human frame that would not shudder at such a monstrous trial. It defines the crime of treason as an offence against whatever has received consecration from time, and is astonished that anyone can think of applying that word to an effort made to complete an unfinished revolution. Lastly, it represents the hero of Varese saying to the tribunal that blushed not to summon him before its bar: "On such a day I made Italy. Let us go and render thanks to Heaven!"

Letters like these fill up the void there is in modern literature for a real satirist. We are not particularly fond of hearing of our faults. When we read of them in our own daily or weekly journals we do not believe in them. We smile with pity over the hard lot of the unfortunate scribbler, who is obliged to say something smart on so unprofitable a theme. We laugh at his phrases and his exaggerations, and we decline to admit the truth which he attempts to insinuate. But we cannot escape from M. Blanc. Though his letters were written, if not for publication, at all events for a large circle, truth has not been sacrificed for wit. Now our indigenous literature seems to have adopted the motto of "Rest and be thankful," sea-side loungers who stumble upon these bright and elegant letters will not be sorry to find the pleasures of reminiscence sharpened by a little of the bitter of foreign criticism.

ELGIN.

Elgin: and a Guide to Elgin Cathedral. By the Old Cicerone of Elgin Cathedral. (London: Hotten.)

WHEN we first opened this book, we were struck with some passages which seemed to imply that worshipping in the Cathedral of Elgin meant very much the same thing as worshipping in the Cathedral of Infinity. But on turning to our Geographical Dictionary we found that Elgin does rejoice in the ruins of a real cathedral, and that it is one of the wonders of the North. The necessity of such information may be thought to indicate great ignorance, and the confession of it still greater weakness, on our part; but we are not, after all, so bad as some excellent and worthy citizens of London, who, the author tells us, impressed by the glories of the British Museum, live under the idea that "Elgin is a great place for marble." Moreover, though it is not likely "Elgin" will find many readers, we are convinced nine persons out of ten would have come to the same conclusion, had they stumbled upon the same passages as ourselves, and would have closed the volume with the idea that to go to Elgin was to go whither the American advised his hearers to go when himself had departed for Texas.

There are treatises in the world, and by no means unhonoured ones, such as "Plato's Republic," which lay great stress upon the best method not only of educating children, but also of producing them; which advocate a community of women, and the establishment and public maintenance of temples of Cythera; but these unchristian ideas are either only intelligible to the learned, or at least are veiled in such cold and philosophic language, that they do not stimulate the passions which they consider ought not to be controlled except when they exceed the bounds of natural gratification. It may be perfectly true that a "maudlin conventional delicacy" has hitherto prevented certain

subjects being looked fairly in the face; but though there is no failing of the former kind in "Elgin," the latter condition is not complied with by the insertion of a few very plain-spoken pages indeed in the midst of an apparent discussion on the Ethnography of a corner of Scotland. The social philosophy here indicated is so manifestly the real end and purpose of the book, that we do not care to inquire whether the author is serious in his endeavours to prove that the "Highlanders are a pure, original, and unmixed people," or that, with that exception, "the whole of the inhabitants of Scotland of the present day are Picts," and that "the Picts are Goths." Those whose interest in the crossing of races is such that they care not in what envelope the sweet poison of Anthropology is wrapped, or rather what kind of "choke" occupies the middle of the leaves they love to disarticulate, must pass an opinion upon the theory which culminates in this synthesis of the ethnic composition of an Elgin man:—

Gothic	Scandinavian	Pictish	·5
		Norwegian	·1
		Danish	·05
	Ditto, passed through a French filter	Norman	·1
		Saxon	·25
		Celtic, a trace	—
		Integer—an Elgin man	1

It is one of the most curious features of modern Free-thinkers that they put forth every theory under the shadow of the name of Christ. Here is a book which in plain language advocates something like universal prostitution on physiological and social grounds, and the abolition or abandonment of all *direct* or public worship, which considers the non-existence of any future state for man as "beyond all controversy the most philosophical aspect of the question," and yet "confidently asserts that there is none other name under Heaven given among men whereby we must be saved!" It is perfectly true that ideas of this sort were very prevalent amongst the early Christians, and the accusations made against them by the Pagans were by no means without foundation, as we may gather from St. Paul himself. The mere enunciation of a doctrine of "Universal Love" would be grasped at and misunderstood, without necessarily any previous determination to gratify intemperate licence. Nor is even the latter at all incompatible with a considerable amount of religious fervour. With us the exaltation of the intellect has occasioned a parallel phenomenon. The wish to reduce *miracle* to *law* is analogous to that which would confound chastity with a denial of its necessity, and the worship of the Deity with silence. Thus even in "Elgin" we stumble on this remarkable argument in favour of the Resurrection, with which we conclude, because it seems written more in earnest than most of the suggestions in this audacious guide-book:—

To sing exulting hymns and songs about having conquered death, is, to be sure, in the present state of circumstances, a ludicrous and pitiable exhibition. It is on a par with a man lying in the kennel bound hand and foot, insanely screeching out at the top of his voice, that he has now put his captors fairly *hors de combat!* But can no *rational* solution be arrived at? Was Jesus Christ really and literally killed, as is recorded in the Gospels? And did He really and literally rise from the dead, and afterwards speak and act, and then ascend or disappear, as is also there recorded? If He was killed, and if, after such an event, He did perform vital actions (and, notwithstanding a certain amount of modern hostile criticism, I am far from believing such a thing impossible, independently of what is called a miracle), it is certain there must have been causes for such phenomena; and a knowledge of such causes, although at present it is wanting, is nevertheless attainable. As to what is called a *miracle*, there is really no such thing; a miracle being nothing else than the subversion of settled convictions by the testimony of a *natural operation, different from any operation of which a knowledge has been acquired from previous experience:* for there never was anything done on the face of the earth, in the predicament of vital statistics, that was not within the limits of nature, and recognizable and practicable by the natural faculties of man.

SLAVERY.

Notes on the History of Slavery in Massachusetts. By G. H. Moore, Librarian of the New York Historical Society, and Corresponding Member of the Massachusetts Historical Society. (New York: Appleton and Co. London: Layton.)

SLAVERY in Massachusetts began as soon as Indians, the original lords of the soil, were captured. Roger Williams, in 1637, could write, "It having again pleased the Most High to put into your hands another miserable drove of Adam's degenerate seede, and our brethren by nature, I am bold to request the keeping and bringing up of one of the children." Traffic in human flesh soon followed this somewhat mild commencement. Many of the male Pequots were shipped off to the Bermudas, and were described in official letters as "cannibal negroes brought from New England." Once established, slavery was not long in obtaining legal sanction, and the first code of laws adopted in 1641, and styled the "Code of Fundamentals, or *Body of Liberties* of the Massachusetts Colony in New England," contains a statute recognizing slavery as a legitimate status. "It sanctions the slave trade and the perpetual bondage of Indians and negroes, their children, and their children's children, and entitles Massachusetts to precedence over any and all the other colonies in similar legislation. It anticipates by many years anything of the sort to be found in the statutes of Virginia, or Maryland, or South Carolina, and nothing like it is to be found in the contemporary codes of her sister colonies in New England." The right to property in man was most rigidly enforced, to judge from the leading case of *Winchendon v. Hatfield*. Edom London enlisted in the Massachusetts Army during the Revolutionary War, but even whilst in active service he was sold for the tenth time in his life, and when he again enlisted, his owner received the whole of his bounty and part of his wages. But when he became old and "poor," the eleven towns in which he had served eleven masters struggled hard through all the Courts to shift the expense of keeping him from one to the other. The great result that all this litigation brought about was, that the issue of a female slave was the property of her master. Born of a slave, always a slave. To Massachusetts also belongs the bad pre-eminence in that Confederacy which provided a precedent for the Fugitive Slave Law, and one of her earliest colonial ships brought back wine, and sugar, and salt, and some tobacco, which she had at Barbadoes, "*in exchange for Africoes, which she carried from the Isle of Maio.*"

Worthy old Cotton Mather thus justifies his proceedings towards the Red Indian, by speculations on the migration of races, which would scarcely be endorsed at the present day, even by Mr. Craufurd.

"We know not *when* or *how* these Indians first became inhabitants of this mighty continent, yet we may guess that probably the Devil decoyed these miserable Salvages hither, in hopes that the Gospel of the Lord Jesus Christ would never come here to destroy or disturb his *Absolute Empire* over them." With such sentiments as these in the mouths of the most pious persons, no wonder the "peculiar institution" flourished. Still it was not till the close of the seventeenth century that the numbers of slaves began to be considerable, though the rights, or recognition of marriage at all events, was denied them. Against this abuse, to his honour be it said, William Penn valiantly contended, although the bill "for regulating *Negros* in their Morals and Marriages," &c., was twice read and twice rejected; and no wonder, for a much less alarming proposition failed, as we gather from the diary of a Legislator: "1716.—I essayed, June 22, to prevent Indians and Negroes being rated with Horses and Hogs, but could not prevail. Colonel Thaxter bro't it back, and gave as a reason of yr Non-agreement, they were just going to make a New Valuation." It may be interesting to know the price set upon these "cattle" at that time. "In the inventory of Captain Paul White, in 1679, was 'one negrow=30*l.*' In 1708, an Indian boy from South Carolina brought 35*l.* An Indian girl brought 15*l.*, at Salem, in August, 1710. The highest price paid for any of a cargo brought into Boston by the sloop Katherine in 1727 was 80*l.* The estate of Samuel Morgaridge, who died in 1754, included the following: 'Item, three negroes, 133*l.* 6s. 8d.'" A hundred years before Mr. Morgaridge's executor had to pay his probate duty upon the negroes, the Quakers had made their public protest against slavery; and again, in 1688, a "little handful of German Friends from Cresheim, a town not far from Worms, in the Palatinate," presented a paper to their General Assembly in Pennsylvania, containing "reasons why we are against the traffic of man's body."

But it was only when public sympathy had been aroused for Christian captives, Dutch and English, who were held in bondage by the Turks and pirates of Northern Africa, that slavery began to be looked on as an injustice. Two most rare, if not unique and interesting documents are incorporated into his book by Mr. Moore. The first is a brief tract written by the Chief Justice of the Supreme Court, Samuel Sewall, in 1700, entitled: "The Selling of Joseph a Memorial." The second is "Judge Saffin's Reply to Judge Sewall, 1701," and is much the most amasing; but we have only space for a few extracts from the concluding portion. "We grant it for a certain and undeniable verity, that all mankind are the Sons and Daughters of Adam, and the Creatures of God; but it doth not therefore follow that we are bound to love and respect all men alike . . . This worthy gentleman would deem himself much neglected if we should show him no more Defference than to an ordinary Porter. And therefore these florid expressions, the Sons and Daughters of the First *Adam*, the Brethren and Sisters of the Second Adam, and the Offspring of God, seem to be misapplied to import and insinuate, that we ought to tender Pagan Negroes with all love, kindness, and equal respect as to the best of men." Frowns and hard words were Judge Sewall's reward. But he was more successful when he attacked slavery on the ground of its being bad economy. Mr. Moore attributes to him the first newspaper article published in America against the importation of negroes. A few occasional efforts of the same kind were made during the next fifty years, but until the colonists desired emancipation themselves from British rule, the "best men" like those in the vicinity of John Adams, thought the practice of slavery by no means inconsistent with their character. Once the question of its lawfulness fairly raised, the struggle was never abandoned. Bills against the importation of slaves were introduced into the Colonial Legislature. When at last one was passed, it was negatived by the Governor, Colonel Hutchinson. He considered, and it seems rightly, that sympathy for the slave was a much smaller motive power than hostility to the Government. Moral scruples certainly became less troublesome when the Royal veto was gone. The business was always "allowed to subside" when it had reached a certain point. At last, in 1776, the Council of Massachusetts had got so far as to forbid the sale of two negroes who had been captured on the high seas, and put up to auction as part of the cargo. But this was an isolated proceeding; and even in England, as late as 1813, Sir William Scott condemned 199 slaves as "good and lawful prize to the captors." The details of the various enactments which indirectly scotched the snake of slavery in Massachusetts would be tedious to most readers. In fact, the "Notes" of Mr. Moore have almost the dryness of a law treatise. As a repertory of facts and legal decisions on the subject, the book is complete. As a standing testimony against the idea that the Northern States ever took publicly any high ground

against slavery till recent times, it is conclusive. He has drawn in a few well chosen words the moral of his own tale :—

The reader of these notes cannot fail to notice the strong resemblance in the mode of the extinction of slavery in Massachusetts and that of villenage in England. Of the latter Lord Mansfield said, in 1785, that "villains in gross may in point of law subsist at this day. But the change of manners and customs has effectually abolished them in point of fact." *Ante*, p. 115, note. If the parallel may be continued, it could be said with equal justice that slavery, having never been formally prohibited by legislation in Massachusetts, continued to "subsist in point of law" until the year 1866, when the grand Constitutional Amendment terminated it for ever throughout the limits of the United States. It would be not the least remarkable of the circumstances connected with this strange and eventful history, that, although *virtually* abolished before, the actual prohibition of slavery in Massachusetts as well as Kentucky, should be accomplished by the votes of South Carolina and Georgia.

THE BEGGAR'S BENISON.

The Beggar's Benison; or, a Hero without a Name, but with an Aim: a Clydesdale Story. 2 Vols., post 8vo, 21*s*. (Cassell & Co.)

HAD the author continued the story in the same strain and amongst the same scenes where he first lays it, we should have been able to speak in highly commendatory terms of his powers of description, of his pathos, of his appreciation of character—for all these are by no means wanting. After the first half of the tale there is not the same truthfulness evinced ; the "Beggar's Benison" becomes a mere ordinary romance, dealing with those phases of middle-class life which have been "done" *usque ad nauseam*. The tale opens with a clever sketch of low life, and its miseries as well as its crimes, and the mixture of sin and sorrow in such localities is depicted with more than common ability. The sufferings of the poor, and the wretched consequences of the ill deeds by which they try to alleviate their trials, is represented in telling colours. Our interest is enlisted for the *dramatis personæ*, but somehow or other we do not feel equally affected with the struggles of the hero in his attempt to rise in life. We think hat the reason may be attributed to the way in which the author has made his principal character behave to his mother and sister, whom he coolly casts off, because he is ashamed of their humble position, and fancies that the connexion will damage his own prospects. By thus separating him from his belongings, he is made to lose the sympathy of those who follow his career. Yet there are some very able hits in the description of merchant life in Glasgow. Dr. Nahum Gust, D.D., the popular preacher of the Presbyterian Church, is admirably drawn ; but, as we have before stated, although we are diverted with the characters introduced, our feelings are not moved as they were at the outset. The story gives us the career of a successful adventurer, and is certainly not beyond probability in any way. The book is profusely illustrated with upwards of 300 amateur pen-and-ink sketches, more talented in conception than execution, full of humour and pathos, although not correctly drawn. Each chapter is headed with some verses, not at all deficient in point. The "Beggars' Benison," although we have alluded to what we consider a defect in its composition, is a lively and interesting tale, interspersed with a good many shrewd remarks on men and manners. The writer has a forcible pen, and in the commencement reminded us a good deal of Smollett, so graphic are his delineations of the roughs of society, their hardships, pleasantries, and amiable, if not strictly legal, pursuits. The old sailor, the father of the hero, is a very nicely drawn character, full of simplicity, honesty, and true-heartedness. The hypocritical, hard-drinking, hard-dealing money-seekers are keenly satirized. We would recommend the author to beware of the resentment of the magnates whom he has ventured to expose. If it be nearly high treason to make the Unicorn play second fiddle to the English Lion, what punishment does he deserve who dares to show up that spirited hybrid as apt to get fuddled, and to play divers other unseemly pranks ?

THE UPTONIAN TRISECTION.

The Uptonian Trisection. By J. Upton.

Trilinear Co-ordinates. By C. J. C. Price, M.A. (J. H. and J. Parker.)

HERE is a little work of nineteen pages (of which twelve are devoted to the prologue and epilogue) which professes to solve geometrically the problem of the trisection of a rectilineal angle. The construction, we are forewarned, is "simple and beautiful," "the proof without a flaw," and fitted to the capacities of those who have never "gone beyond the third book of Euclid !" It is with boyish delight we hear such promises, especially after being told that for the last 2,000 years the desired solution "has been sought after by mathematicians universally, but in vain ; that even now in Universities and other schools of science, it is to numbers of students an enticing but bewildering pursuit, and that too many, alas ! have followed it to the borders of insanity." But when we learn that he whose penetrating research has eclipsed that of such men as Newton, Leibnitz, Euler, &c., is still not willing "to be set up for a profound mathematician," we are, indeed, as anticipated by our author, tempted to exclaim—

> Can such things be,
> And overcome us like a summer cloud,
> Without our special wonder ?

Our mathematical dilettante is, however, fully impressed, with Sir G. C. Lewis, of the truth, that well-placed confidence is one of the main elements of civilization, and feels it his duty, therefore, to apologize somewhat for daring to offer to the world, or rather we should say to the school-masters of the United Kingdom, to whom the work is dedicated, the solution of a problem all trustworthy authority has hitherto pronounced impossible. "The fear of singularity, the dislike of labour, the fear of unpopularity, and the danger of asserting individual opinion against established conviction," have alike had no power in preventing our discoverer from appearing as the champion of truth ; but much as we may admire his ingenuity and perseverance, unfortunately we cannot take for gospel all his promises, and must proceed to an examination of the "Problem of Trisection," as presented to us by him.

He has very ingeniously reduced the trisection of any arc to describing a parallelogram upon two intercepting equal circles, so that a circle circumscribing the parallelogram shall touch the two given arcs at the points where the parallelogram touches them. His *modus operandi* will be easily understood by our mathematical readers, if they will construct the diagram as they read the following : Take any rectangular figure ABCD and with D as centre, and DA radius, describe the arc AEO ; and with C as centre and CB radius describe the arc BEP ; and again, with A as centre, and with the same radius, describe the arc KF, and from the point B an equal arc MF ; join FE ; then it becomes necessary to describe about the straight line FE a parallelogram, of which the extremities of the base shall be in the arcs PE and EO, so that a circumscribed circle shall also touch these two arcs in the same points. To effect this, he bisects the line FE in S, and with a radius SE, describes the circle GEH ; and then bisects the lower intercepted arcs EH and EG, and through the points of bisection draws two lines parallel to FE, and then, *without further ado*, *assumes* that the line joining the points where the two parallels cut the upper arcs EP and EO will be the base of the required parallelogram. If this were the case, the problem would indeed be solved ; but we are unable to understand, without more elucidation, why he has chosen to bisect rather than take any other points in the lower arcs through which to pass the trisecting line (as he terms it) In answer, therefore, to his "respectful challenge to the mathematical world," we can merely add that, even now, we are unable to give an adequate algebraic solution for the trisection, or to admit that his geometrical solution is correct.

It is, indeed, a pleasure to turn from a would-be to a truly scientific work ; and Mr. Price's book, which fully satisfies the long-acknowledged want of a text-book on the subject of trilinear co-ordinates, is, from its size, arrangement, and clearness in demonstration, calculated to meet with universal praise. In the elementary portion, to render it as complete as possible, the consideration of equations of an order higher than the second has been excluded, as also the focal properties of conic sections ; but as little is gained by the employment of the trilinear method in this class of investigations, we cannot regret the omission. It is only in the fifth chapter that we meet with matter belonging to the department of pure geometry, or any reference to other systems of co-ordinates—a digression warranted by the want of a succinct yet complete account of inharmonic ratios, harmonic points, &c. There are no treatises on trilinear co-ordinates better adapted to the use of the mathematical student, and we have great confidence in recommending it to the attention of professors of mathematics.

Lessons in Elementary Chemistry. By Henry E. Roscoe, B.A., F.R.S., Professor of Chemistry in Owen's College, Manchester. (London : Macmillan.)—We are glad to find that introductory text-books of chemistry, written in accordance with modern theory, are increasing in number. The first books which attempt to adapt a new system to the wants of beginners are sure to be crude and imperfect, and even if they were not, it would still be highly desirable to extend the stock from which teachers and students must choose. We therefore welcome Professor Roscoe's little book cordially, although it is very similar, both in size and arrangement, to the recent work of Professor Williamson. In many respects, the new comer is a decided improvement on the last-named book. It is more accurate, more clearly arranged, and more comprehensive, several subjects, such as spectrum analysis, and crystallography, which Professor Williamson passes unnoticed, being succinctly sketched. There is rather less of detail, and some sections, notably in the organic division, are decidedly inferior to the corresponding parts of Professor Williamson's book, but these defects are amply compensated for by a fuller and more intelligible account of the recent advance in chemical classification. The introduction to organic chemistry, embracing the hypothesis of "atomicity" as an explanation of the arrangement of the elements in a chemical compound, is particularly clear and satisfactory. The illustrations to the book are good, and its value is materially increased by a copious index.

Nature and the Bible in Agreement with the Protestant Faith. By James Davis, Esq., C.E. (Houlston and Wright.) — The remarkable title of the above work was quite sufficient to attract our attention. That a work should be written in defence of the three principles, or theories, or documents above cited would naturally evoke some surprise, even if each separate argument was adduced apart ; but to advocate each all at once is really a puzzling state of things. The author has, however, already published works on "The Decay of the Stone of the New Palace at Westminster," and also on the "Metropolitan Sewerage," and we accordingly are enabled fully to recognize his ability to deal with the "Protestant Faith." There is, however, very little theology really in the work, and what there is, is not too good. The chief point with our author appears to be the denial of the Newtonian theory of attraction, which in some way interferes with the writer's notion of "the Protestant faith." The motto which he selects is "The Inspired Word of God is the Exodus of Knowledge." We know not whether he meant "genesis," nor have we any very clear understanding what the exodus of knowledge

possibly can mean. His second motto is *μὲγα βιβλίον, μὲγα κακόν*. This book is certainly small, but it is very bad. It reverses the saying of the Governor of Antigua's nurse, when congratulating her master on the birth of a child, "Him little, massa, but him dam good." In this case, however, it is *μικρα βιβλίον, μικρα κακόν*. The author has special theories of his own, which no doubt will be adopted when Newton and a few other hasty generalizers are condemned. He inclines "to the opinion, that the presence of phosphorus in the oxides of metals is due to the decomposition of both the ethereal element and the solar beams, which I have before shown to be products of carbon and magnetical rays, the three substances united in one forming the compound phosphorus." We have no doubt that everyone will compliment him on this remarkable discovery, while it is improbable that any person will seek to plagiarise from him. Excepting his remarkable discovery that Würtemberg is a "province," there is nothing special to notice in the book. We have no doubt that the students of dynamical and magnetical science are duly alarmed at the vehement attack Mr. Davis makes on them, and that the ashes of Kepler and Newton vibrate with respectful fear at his philippics. The work is very dull reading. In the words of the author, "It is a mysterious adjective of Almighty power, an incomprehensible actuality, a substantive antepast of the imperative verb, Let be."

We have received *An Elementary Course of Mathematics, Designed Principally for Students of the University of Cambridge*, by Harvey Goodwin, D.D., Dean of Ely. Sixth Edition, Revised and Enlarged by P. T. Main, M.A. (Cambridge, Deighton, Bell, and Co.; London, Bell and Daldy);—*On the Undulatory Theory of Optics, Designed for the Use of Students in the University*, by George Biddell Airy, Astronomer Royal. A New Edition. (Macmillans);—*A Concise Glossary of Terms used in Grecian, Roman, Italian, and Gothic Architecture*, by John Henry Parker, F.S.A. A New Edition, Revised. (Parkers). And amongst pamphlets, *Sowing and Reaping: a Sermon on behalf of the Cholera Fund*, by Francis Pigou. (Rivingtons);—*Cholera: its Causes, Prevention, and Simple Treatment*, by Joel Shew, M.D., and R. T. Trall, M.D. (Bacon and Co., and W. Tweedie);—*Cholera: a New Theory*, by C. Dudley Kingsford, M.D. (Churchill and Sons);—*Mechanical Treatment of Cholera*, by a Physician. (Churchills);—*The Land Question*, by Joseph Fisher. (Dublin, M'Glashan and Gill; London, Longmans);—*Union Rating, Ireland: Speech of Mr. Serjeant Parry, M.P., delivered in the House of Commons on Wednesday, June* 13, 1866. *With Notes*, by J. Fisher (Dublin, M'Glashan and Gill; London, Longmans);—*Reply to a Letter Addressed to Malcolm Ross, Esq., President of the Manchester Chamber of Commerce, by John Dickenson, Jun., Esq.*, by Robert Knight, "Times of India." (London: Johnson).

We have received the *Eclectic and Congregational Review*, the *Sunday Magazine*, the *Family Herald*, the *Mother's Treasury*, the *Missing Link Magazine*, the *Children's Hour*, *Good Words*, the *Cottager and Artizan*, the *Christian Treasury*, the *Leisure Hour*, the *Sunday at Home*, the *Sunday Teacher's Treasury*, the *St. James's Magazine*, the *Sixpenny Magazine*, the *Day of Rest*, the *Colonial Church Chronicle*, the *Church Builder*, the *Church of the People*, *Routledge's Magazine for Boys*, the *Boy's Own Magazine*, the *Boy's Monthly Magazine*, the *Children's Friend*, the *Infant's Magazine*, the *Pulpit Analyst*, the *Monthly Magazine*, the *Englishwoman's Domestic Magazine*, the *Young Englishwoman*, the *Band of Hope Review*, the *British Workman*, the *Ladies' Treasury*, *London Society*, the *Sixpenny Magazine*, *Evangelical Christendom*, the *Union Magazine for Sunday-school Teachers*, the *Bible-class Magazine*, the *Biblical Treasury*, the *Sunday-school Teacher's Magazine*, the *Youth's Magazine*, the *Child's Own Magazine*, the *British Navy and Army Review*, the *Mother's Friend*, *Merry and Wise*, the *Victoria Magazine*, *Aunt Judy's Magazine*, the *Net*, the *North Lonsdale Magazine and Lake District Miscellany*, and the first number of the *Suburban Magazine*.

A SYSTEM OF MORALITY.

[III.]

"WITHOUT the notion of punishment," says Bentham, 1, p. 293 n. (that is of pain annexed to an act, and accruing on a certain account, and from a certain source), "no notion can we have of either right or duty. That it is my duty to do which I am liable to be punished, according to law, if I do not do; this is the original, ordinary, and proper sense of the word Duty. One may conceive three sorts of duties — political, moral, and religious. Political duty is created by punishment. Religious duty is also created by punishment. Moral duty is created by a kind of motive which has hardly yet got the name of punishment." I think there are four sorts of duties. What Bentham calls Political, I should call Legal; the three others are religious, moral, and artistic. The two first duties, the legal and religious are created by punishment, as Bentham says. But though a certain amount of what may be called punishment, will probably befall those who do not fulfil their moral or artistic duties, yet the notion of duty in these senses does not necessarily imply punishment, nor is the idea at all predominant in the notion we form of them.

I confine moral duty to the obligations comprised in the deontological expressions of Scientific Truths. I do not conceive that any notion of punishment is implied in saying that it is our duty to act morally—that is, to regulate our conduct according to the science of Morality. If I am asked what meaning I attach to the word "ought" as used in what I call the enunciation of a Scientific Truth, such as, Men do and ought to educate their children, I reply, That kind of meaning which would attach to such an assertion as, The planets do and ought to move in ellipses,—that is to say, that in order to have any science at all in the matter, we must assert that they do so, and when they do not, we must say that they have deviated from the rule to which they ought to conform. If the question is asked, Why need we have any science at all? I reply, Because man cannot reason on phenomena without endeavouring to arrange his observations and speculations in what are called a scientific form; this is a law of his being, and here enquiry must become metaphysical, physical, or cease.

But it will be said, This may do very well theoretically, but how will you impress man with a practical notion of moral duty? If no idea of punishment or disadvantage to himself occurs to the individual in case of neglect of any one or more of your scientific truths, how do you expect he will obey them, if to do so seems contrary to his own immediate interest? To this I reply, Science has nothing to do with the individual. The criteria I have laid down, if correctly applied, are sufficient to prove that the species has on the whole very largely acted up to the positive, or admitted the deontological part of each truth; that there is every prospect of its doing so as long as we can now foresee; and this is all science has to do with the matter. The species, experience shows, must act in this manner, and by an increasing majority of the individuals who compose it. This will form a sufficient basis for any art which may be connected with this science, and this is enough for what are called practical purposes. He who deflects from the law of his species is merely an individual whose perturbations cannot be comprised in the law, and who, if that law should one day become universal, will have no parallel or representative remaining. If I am asked, How comes it that the species has acted in this manner; and does not this fact imply some natural law of Morality, as it is called, and are you not bound to explain this? I say, This is a question which answers to Morality, as Cosmogony to Astronomy, and I may complete my science without answering or noticing it. Tell me the origin of man, nay tell me the object or utility of the species, and I will explain not only in what way man is moral, but how he became so; not only the tendencies he has as a moral being, but the ultimate object of the science of Morality itself. When I say, then, that a man ought to educate his children, I merely mean that he who does not must needs fail to conform to a law which can be predicated almost universally of every individual of the species; and when I say, Men ought to educate their children, I merely say that this is one of the truths or laws which science enables us to predicate of the species, and obedience to which may be considered as an actual necessity of its continuous existence.

I come now to artistic duty. By this I mean the use of the word "ought" when applied to the means necessary to obtain a certain end. Thus I may say, If you wish to be a geometrician, you "ought" to study Euclid; or, it is your duty to study Euclid. This is almost always the real meaning of the word ought, or duty, when we think we are laying down a moral duty. Thus one will say, You ought to pay some attention to dress. If you ask why, the answer is, Because society or your friends expect it. This means, if you wish to go into society, or to please your friends, &c. Here comes out at once the artistic duty. But as it is assumed that everyone wishes to go into some society, or has some friends to please, the hypothetical or artistic view of the duty is forgotten, and the impression conveyed and intended to be conveyed is, that attention to dress is what is commonly called a moral duty. It is this peculiarity of the mind to assume that what appears incontrovertible to the individual can never be otherwise to another, that prevents the analysis being made on so many occasions, which would at once show that to say that a man ought to do a thing is only what I call artificially true—that is, only incumbent on those who have a certain end in view, instead of being universal or moral.

Even legal duty may be brought under this head, by supposing the commands of the law to be expressed as an alternative—that is, if you wish to escape punishment, if you wish to enter into a contract, you ought, &c. But as a fixed punishment is attached to, if not always exacted from, any deviation from our legal duties, it seems more convenient to keep them under a separate head. Religious duty is more commonly made artistic than we might at first sight suppose. The usual way in which children are taught the beginnings of religion is commonly by this syllogism—

Every one ought to love or fear God.
To love or fear God is to do, &c., or not to do, &c.
Therefore, every one of you ought to do, &c., or not to do, &c.

Now this is making religion an artistic duty, by setting a distinct end in view, and laying down rules to attain it. It is not till a more advanced age that the end becomes indistinct, and the means less and less certain in detail at least, till religious duty assumes so different an aspect from any other, that it must be classed by itself.

It will be seen that the great majority of our duties come in my view under the head of artistic duties; and also that right or wrong cannot, in a moral sense, be predicated of an artistic duty. For though I ought to study Euclid if I wish to become a geometrician, I may abandon that wish if I find Euclid too difficult, and I may change my wishes as often as I please. Or if I am told, If you wish to learn a trade you ought to adopt certain habits, I may say, I am content to live by hard labour, or in some other way, rather than adopt those habits. And though the end may coincide with the fulfilment of what is commonly called a moral or religious duty, that will not make the intermediate means other than artistic. If you wish to please your father, you ought to do, &c. Here the duty implied in the word "ought" is really only artistic. Perhaps I ought to please my father; but it is the result which is the moral or religious duty, not the setting about things in a way so as to produce the desired result.

(To be continued).

PUBLICATIONS OF THE WEEK.

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SCIENCE.

THE BRITISH ASSOCIATION.

Nottingham, Wednesday Evening.

I fear this letter will run considerably into explanation, as I find that my last has wounded the feelings of the "senior trustee" and one or two other members of the General Committee, whom I had not the pleasure of knowing even by name, and has also "riled" a small local journal, which replies, after the fashion of small local journals in general, with a volley of abuse. Of course, I might pass over all this, and leave the British Association with the proud consciousness that I had done my duty and been abused for it; but I prefer endeavouring to heal the wounds which I have so inadvertently made. And to begin with the Town of Nottingham, for which the small local journal aforesaid has taken up the cudgels. I consider Nottingham one of the pleasantest and prettiest English towns I ever visited. I am connected with it to a certain extent by local ties, and am a frequent visitor there. But a town may contain every possible advantage except the right one of being fitted for the reception of the British Association. This is about the case with Nottingham; but it is not Nottingham that is accountable for being ignorant of the fact. Had the authorities of the British Association taken the trouble which they ought to have done to inquire into the resources of the town, they would have seen at once that they were utterly inadequate, and they would have persuaded the inhabitants to wait a few years, until their thriving and prosperous town got larger, and possessed more buildings which could be devoted to the purpose. At present the Reception Room is open on one side to the street, the doorway forming a convenient lounge for the local rabble, and is absolutely *without convenience of any kind.* Three of the Sections, A, B, and C, are lodged in the School of Art, a very convenient building, but most awkwardly situated, being a long way from the town, and somewhat difficult to find. In fact, the only section which may be said to be suitably accommodated is Section E. I hope your readers will not draw any ill-natured inferences from this. Of course, somebody is responsible for this, and, of course, somebody is responsible also for the thousand-and-one little omissions which make the meeting of the British Association in Nottingham a constant scene of petty annoyances. The sins of the inhabitants are venial in comparison with these. The *Mansfield Reporter*, a local paper of the vicinity, says, "Many of the inhabitants saw in the visit of the Association a providential opportunity for making money, and they applied themselves to the task of improving the opportunity in every way that their ingenious minds could devise. Thus lodgings, provisions, cabs, and everything that strangers were likely to want made wonderful advances in price; and the members would certainly be relieved from the painful thought that their temporary sojourn could entail any loss on the town that had the honour of welcoming them."

This is not so astonishing—for tradesmen will be tradesmen all the world over, and those who get their living by buying and selling will certainly look out for every opportunity to sell dearly as well as to buy cheaply. It is to be feared that even in Dundee haggis and cock-a-leekie will be at a premium, and that the shop-keepers of the Land o'Cakes will retail whisky-toddy at double its value during the visit of the British Association. As for hospitality, it is the last thing I should wish to accuse the Nottingham people of deficiency in, although Sir R. I. Murchison alluded to me in the General Committee as "the one exception in the gratitude felt by the members of the British Association for their hospitable reception." What I complained of, was not want of hospitality, but want of interest in science, which, in my opinion, if not in Sir Roderick's, are two very different things.

The principal thing, after all, in the British Association, is the amount of work, and this is on all hands acknowledged to have been very satisfactory. The supply of papers has been extremely good, and the sections have been well attended, especially Section E, on three occasions, when it has been the great centre of attraction. The first was on the occasion of Sir Samuel Baker's paper on Thursday; the second on Friday, when Mr. Palgrave gave some account of Arabia; and the third yesterday morning, for the purpose of hearing M. Du Chaillu's adventures in Equatorial Africa. Mr. Palgrave's speech was a perfect model of elegant elocution, and was listened to, as, indeed, were the other two, with intense interest by a crowded audience, which completely filled the large room at the Mechanic's Hall. The other sections have frequently been the scenes of animated discussions, as will be seen by your abstracts of papers, &c. There are, however, some complaints that the committees of certain sections have swamped the sections with papers of their own, to the exclusion of many others of equal value. The evening lectures at the theatre have been attended by crowded audiences, and ladies in evening dress have displayed their enthusiasm by standing for some time under the porch, waiting for the doors to be opened. Let us hope their lungs were sound. Two evenings have been devoted to conversaziones at the Industrial Exhibition building, which was tastefully decorated for the occasion, and filled with no small number of charming faces, which even the ghastly effect of the magnesium light in the refreshment rooms was insufficient to render hideous. Then there was a very pretty flower show in the "Park," with some good music; and last, but not least, the excursions. Oh, those excursions! The rending of coats and the demolition of wooden barriers, and the semi-suffocation of luckless officials, which has been caused by the struggle of the valiant sons of science for the possession of luncheon tickets, is appalling to contemplate. The *Nottingham Express* of to-day, in a very sensible article upon this subject, suggests, as a remedy, that excursion tickets should not be confined to the holders of luncheon-tickets; but it is much to be doubted whether this would much diminish the rush for the latter. The only plan would appear to be to receive applications for luncheon-tickets in writing only, and to address them to the successful

applicants. This would not entail much additional trouble, and would obviate these unseemly exhibitions.

The members of the deputation from Norwich have deferred their claims for another year, and Dundee has been fixed upon for next year's meeting, which is to be held in September, under the presidency of the Duke of Buccleuch. Why does the British Association tolerate this miserable flunkeyism? It is perfectly right that dukes should be treated, as the Articles of War say, "with the respect due to their rank," and they should be encouraged as much as possible to take an interest in scientific pursuits; but for a body of scientific men to elect for their President a man whose name is utterly unknown to science, simply because he is a duke, is an unmitigated piece of snobbery, of which a body like the British Association ought to be heartily ashamed. Besides this, this "unnatural selection" places an amiable Scottish chieftain in an absurdly false position, which he certainly would not desire.

The general meeting of the Association took place to-day at three o'clock, and was attended by a very large muster. Some interesting speeches were delivered, and several grants made for various scientific objects, amongst which was one for an expedition to the North Pole. The number of members and associates present this year has reached 2,300, and has only been exceeded on four previous occasions. This is encouraging, and shows that the British Association might soon become really popular if it will only eschew tuft-hunting, and stick to scientific pursuits.

REPORTS.

*Report of the Committee of the British Association on Uniformity of Weights and Measures.**

Your Committee have much pleasure in reporting that during the year steps of great importance have been taken to promote the adoption of one common Decimal System of Weights and Measures both at home and abroad. In November, 1865, a second Conference was held at Frankfort of official delegates from different German States, including Austria, Prussia, Bavaria, Saxony, Hanover, Wurtemburg, Baden, Hesse, Mecklenburg, Nassau, Oldenburg, and the Hanse Towns, with a view of determining the basis of a uniform system for the whole of Germany, in confirmation of what had been agreed upon in 1863, on which occasion, however, Prussia was not represented; and by a protocol of the 28th November, the delegates have resolved to take the metre as a unit of measure with the other portions of the Metric System, allowing the co-existing of the foot of three decimetres, the inch of three centimetres, and the line of three millimetres. It is much to be regretted that by thus combining two otherwise antagonistic systems the Commissioners have thrown an impediment to the absolute introduction of the Metric, but the question will doubtless be subject to further consideration. The war which has taken place in Germany has delayed for a time the consideration of this and other measures of progress; but it is gratifying to learn one of the first conditions laid down in the preliminaries of peace was the establishment of a Uniform System of Weights and Measures, not only over the north of Germany under the immediate influence of Prussia, but over the southern portions also.

In the United States of America considerable advance has also been made. Seizing the opportunity of Mr. Yates Thompson's visit to the States, your Committee have desired him to ascertain what steps were taken on the subject in that country; and it is gratifying to learn that the Americans seem prepared to advance farther and much more expeditiously than we have done. Mr. Thompson, whose able report we have the pleasure to append, informed us that on the recommendation of a Select Committee on Weights, Measures, and Coinage, appointed by the National Academy of Science, two Bills were introduced in the Senate and House of Representatives, one rendering the use of the Metric System lawful in the United States, and the other authorizing the use in post-offices of weights of the denomination of grains; whilst joint resolutions were passed enabling the Secretary of the Treasury to furnish to each State one set of the Standard Weights and Measures of the Metric System, and authorizing the President to appoint a Special Commissioner to facilitate the adoption of one uniform coinage between the United States and foreign countries. These resolutions passed the House of Representatives with little or no opposition. The two Bills have passed into law.

The approaching Universal Exhibition in Paris in 1867 appeared to your Committee a most favourable opportunity of promoting uniformity in weights and measures, and they have suggested to the Imperial Commission an Exhibition of the Weights, Measures, and Coins of all countries, and the holding of an International Conference on the subject at the same time. A similar request was sent to the Imperial Commission by the International Decimal Association, and in union with them we deputed Professor Leone Levi to proceed to Paris to put himself in communication with M. Le Play, the Commissaire-General, with a view to the advancement of the object. Professor Levi has fully succeeded in his mission, and a Special Committee of the Scientific Commission has been appointed to promote the object in view. Your Committee indulge the hope that the proposed Exhibition with the International Conference will greatly promote the desired uniformity, and they are most anxious for the success of an undertaking in whose initiation they have taken an active part. Professor Levi's Report on the subject is appended.

The International Statistical Congress, which met last in Berlin in 1863, proposes to hold its next meeting in Florence in October of this or next year. At all previous meetings the question of Uniformity of Weights, Measures, and Coins, in their character as statistical units, formed the subject of grave discussion; and although the Congress has not only repeatedly expressed its opinion in favour of uniformity, but made specific recommendations with a view to its attainment, it is most desirable that it should on this occasion also, when many of the Southern States of Europe are likely to be there represented, give its authoritative voice in favour of uniformity in weights, measures, and coins, both for statistical purposes and the general progress of scientific and social intercourse among nations. The British Association has never yet been represented in that Congress, and it seems befitting that this section of statistics and economic science should seize the opportunity of the discussion of a subject in which both that Congress and this Association have taken such lively interest, for the establishment of a correspondence and mutual representation likely to prove most beneficial to statistical science; and Italy, whose contributions have been so valuable to science and art and political economy, will doubtless heartily welcome the representatives of this great and eminently progressive Association.

The state of weights and measures in India has been brought before your Committee in two pamphlets — one on Indian Weights and Measures, by Mr. Gover, Principal of the Military Male Orphan Asylum of Madras, and another by Mr. James Bridgnel, Head Accountant of Her Majesty's Mint, Calcutta, entitled, "Suggestions for a Decimal System of Measures, Weights, and Money for India." Having regard to the great importance of extending to that empire the same advantages of uniformity as we are labouring to promote in other parts of the world, your Committee have sent an Address on the subject to the Government of India. The question is now under the consideration of the Indian Government, but much difference exists between the Madras and Bombay Commissions on the respective merits of the Decimal and Binary Systems. It is most important that India should neither be separated from nor remain behind any country in the world; and we trust that at the forthcoming Exhibition and International Conference to be held in Paris she will send copies of all her weights, measures, and coins, and be duly represented in the French capital, especially as her trade with countries using the Metric System is becoming more and more extensive.

It is much to be desired that a measure for legalizing the use of Metric Weights and Measures, similar to that passed in the United Kingdom, should be introduced in all the British Colonies, and your Committee would be glad to obtain the co-operation of Her Majesty's Secretary for the Colonies in so important a matter.

At home, the only legislative measure recently passed bearing on the subject is one for transferring to the Board of Trade the department of Weights and Measures, previously connected with the office of the Comptroller of the Exchequer. Your Committee regret that no provision has been made in the Act for authorizing that Board to provide themselves with a copy of the standard Metric Weights and Measures, with a view to the stamping of the metric weights and measures in common use. The law on the subject is in a very anomalous state. Although the Metric Weights and Measures Act of 1864 has rendered permissive and legal the use of such weights and measures, the Inspectors of Weights and Measures are by law bound to seize any such weights and measures not duly stamped; and since no means are now afforded for stamping them, the Act is rendered inoperative. Seeing that the system is being extensively introduced in many arts and manufactures, and in commerce generally, it is much to be desired that the law on the subject may speedily be amended. A deputation from your Committee waited on the late President of the Board of Trade, Mr. Milner Gibson, on the subject, and he promised to consider the introduction of a separate measure to remove the anomaly. But the session was too far advanced, and nothing has been done. Since then, Mr. Ewart has given notice in the House of Commons that early next session he will move for the appointment of another committee to facilitate the introduction of Metric Weights and Measures.

Among the means by which Her Majesty's Government could promote such introduction, we might mention the preparation of all statistical documents by the Board of Trade in the terms of the Metric System as well as in the Imperial, and the publication of the British Tariff in a similar manner. The International Statistical Congress has strongly urged the former of these measures, and we see no reason why the Board of Trade and the Board of Customs should not supply these additional facilities both to statists and British merchants. Although the articles now subject to Customs duty are very few, still the operation of the British Tariff is most perplexing to those accustomed only to a Decimal computation.

Your Committee have given their earnest consideration to the procuring of a Mural Standard as a means for diffusing information; and they have appointed a Sub-committee to ascertain and report on the best form and material in which such standard can be constructed. The Sub-committee have devoted much time to the subject, and they have finally succeeded in obtaining from Mr. Casella a model of a Metre and Yard combined, which seems to fulfil all the conditions necessary for the proper exhibition of these measures in the most conspicuous places. A special report on the subject by the convener of the Sub-committee, Mr. James Yates, is appended. The Committee propose purchasing some copies of such standard; and as the cost is five guineas each, the sum already voted by the Association will be barely sufficient for this item alone.

Your Committee are anxious to see school instruction more operative towards extending the knowledge of the Metric System among the young. To promote this object, they have addressed themselves to the President of the Committee of Council on Education, for the purpose of suggesting the introduction of the Metric System into the examination of teachers in the training schools supported by Parliamentary grant, and a conference with teachers and others interested in education was held on the subject at the Lecture Theatre in Jermyn Street. Great difficulty is, however, experienced in inducing teachers to give due prominence to the Metric System, so long as the use of it is only permissive, and all the tables of Weights and Measures according to the Imperial System are still to be taught.

The measures and weights of the Metric System having been almost universally adopted by scientific chemists, there seemed to be every reason to expect that they would be adopted in pharmacy also. This has been done in some countries which have not yet introduced the system into commerce. The Swedish Pharmacopœia is constructed on this principle, and in the United States of America prescriptions are written in terms of the Metric System. In this country the change has hitherto been opposed by the General Council of Medical Education and Registration, which issues its decrees under the authority of an Act of Parliament. In these circumstances, the Metric Committee of the British Association resolved to address the Medical Council, suggesting that "the objection formerly

* This report was read by Professor Leone Levi in Section F.

urged to the introduction of the Metric System side by side with the Imperial in all the formulæ for the preparation of drugs and chemicals, that the Metric Weights and Measures were not yet sanctioned by the Legislature, is now removed by the passing of the Metric Weights and Measures Act," and expressing the desire of the Metric Committee that the system may be introduced into the forthcoming new edition of the Pharmacopœia. Hereupon the following resolution was passed: "That the General Medical Council are not prepared to adopt, in its full extent, the suggestion of the Metric Committee of the British Association; but the Council will direct that a complete comparative table of Metric and Imperial Weights and Measures, with instructions for their mutual conversion, shall be inserted in the forthcoming edition of the British Pharmacopœia."

Your Committee thought it probable that great advantages would arise from the introduction of the Metric System in the carrying department of railways. On this question Professor Levi consulted some of the officials at the Clearing-house in London, and Mr. Louis d'Eyncourt, a member of the Council of the International Decimal Association, embraced the opportunity of a visit to Boulogne to make inquiries regarding the goods traffic by railway between England and France. But, although the evidence thus obtained was important and decisive, it appeared that the Royal Commission on the Railways of Great Britain and Ireland was not disposed to proceed with the inquiry.

Your Committee have reason to believe that they have already exercised considerable influence in the promotion of an object of so wide and general importance as the uniformity of Weights, Measures, and Coins in all countries; and, in conclusion, they would recommend the re-appointment of the Committee with similar powers, and another vote of at least 50*l.* towards the purchase of additional copies of the Mural Standard, and more especially in connexion with the forthcoming Universal Exhibition and International Statistical Congress.

Appended was an interesting report on the progress of the "Metric System in the United States of America," by Mr. H. Yates Thompson, F.S.S., embodying the Acts now in operation, and the tables upon which they are founded; and a report on "The Exhibition of Weights, Measures, and Coins at the Universal Exhibition in Paris, 1867," by Professor Leone Levi, which ran as follows:—

The Exhibition of Measures, Weights, and Coins, will, I am confident, be most interesting. There we shall see, arranged systematically in relation to the methods of computation, all the different systems in use throughout the world. Conspicuous for its scientific claims and its extensive use will be the metre with all its applications, an opportunity being afforded, I trust, of comparing the original standards and examining the very instruments used by Lagrange, Laplace, Borda, Monge, and Condorcet, in the construction of the system. But side by side with the metre we shall see the Arshine of Russia and the Endasch of Turkey, the Sasi of Japan, the Hath and Tola of India, and a thousand other measures of length, surface, and capacity, and weights, used in all countries of the earth. The collection of current coins will be of peculiar interest, as it will exhibit the practice of different countries in the metal, size, and value of the several coins, and also the degree of perfection attained in the coinage. Many illustrations we shall have of the kinds of money used by different nations. The precious metals will of course predominate, yet we may see some specimens of substitutes for coins which are still in use, such as the Ahmulah in Abyssinia. My best thanks are due to M. Le Play for his kindness towards me during my visit to Paris, and I should fail in my duty were I not to acknowledge with gratitude the care and interest shown by M. De Chancourtois in the promotion of the object of my mission to that great metropolis.

Section A.—Mathematical and Physical Science.

President—Professor Wheatstone, D.C.L., F.R.S., &c.
Vice-Presidents—J. P. Gassiot, F.R.S., Rev. Charles Pritchard, F.R.S., Pres. R.A.S., Professor Rankine, F.R.S., W. Spottiswoode, M.A., F.R.S., Professor Tyndall, F.R.S., Lord Wrottesley, D.C.L., F.R.S.
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No address was delivered in this section.

On Electro-negative Fogs, and more particularly on the Dry Mists which occurred over London and its neighbourhood in June, 1861, *and August*, 1866, by Dr. T. L. Phipson, F.C.S. London.

In this paper Sir Humphrey Davy's notion that no fog formed over stagnant or running water unless the temperature of the water is higher than that of the land, is shown to be erroneous. It is very evident that the temperature of the air, water, or land, could have had no influence upon the remarkable fog which occurred in London on the 27th December, 1813, and lasted till 2nd or 3rd January, 1814, during which time the thermometer varied from + 1° cent. gr. to — 6°, as noticed by Thomas Young.

After alluding to Peltier's and Dr. Meissner's recent researches on the influence of electricity in producing fogs, Dr. Phipson shows that, as early as 1761, an English experimentalist, Mr. Ronayne, whose very name is unknown to most of our modern electricians, called attention to the fact that fogs are highly electrical, and that sparks can be obtained from them.

With very few exceptions, according to Dr. Phipson, the existence of a fog depends upon its electrical state. The dense London fogs, which are electro-positive, about November and December, attract the smoke of our chimneys, which is electro-negative; they would be much modified, and perhaps dispersed, if this smoke could be positively electrified as it mounts into the air.

The author next alludes to the dry fog observed by him in London, in June, 1861, which was very remarkable in many respects. It was of a yellowish tint, with an odour of burnt peat; it existed in spite of a strong easterly breeze, and was noticed over a considerable extent. This was an electro-negative fog. The blue mist which has lately reigned over London, and has been supposed to be connected in some way with the cholera, is also an electro-negative dry fog. Dr. Phipson calls attention to the fact that these dry fogs are often highly phosphorescent at night, and this was also the case with the dry fog of 1783, which spread over a great portion of Europe. These dry mists are not always blue—their colour varies very much, being sometimes grey, brown, yellowish, blueish, &c. For many years they have been supposed by various writers to be connected with epidemic diseases, but the fact requires proof.

Mr. Glaisher explained some particulars regarding the blue or cholera mist, and stated that its peculiar feature was, that where the mist was most dense, at that place there was no cholera. The first investigation he had made on that subject was after being appointed to a commission by the Government after the cholera in 1854. He had made various investigations with reference to that mist, but although it had been thought that the peculiar appearance called mist contained animal life, he had not found such to be the case. He desired microscopists to examine plates of glass which had been placed in the open air all the night, for the purpose of ascertaining what the mist really was. If the mist was connected with the cholera, there was something else wanted to bring it into action, for at that time where the mist predominated that place was free from cholera.

Section B.—Chemical Science.

President—H. Bence Jones, M.D., F.R.S.
Vice-Presidents—Professor Daubeny, M.D., F.R.S., H. Debus, F.R.S., W. A. Miller, M.D., V.P.R.S., Lyon Playfair, C.B., F.R.S., J. Stenhouse, LL.D., F.R.S., A. W. Williamson, F.R.S.
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The President, after alluding to the prejudices in favour of classical, and the slow progress of scientific education, and describing the present peculiar characteristics of medical education, observed that the analytical and pharmaceutical chemists are rapidly accumulating knowledge, which will enable them not only to understand fully the nature and uses of food and medicines, but even to detect the first appearances of a multitude of chemical diseases. Their habits of investigation, and their knowledge of the nature of the forces acting in the body, will gradually lead them to become advisers in all questions regarding the health of the community, and from this they will, like M. Bouchardat, in Paris, become almost, if not altogether, practitioners of medicine. No doubt chemists are very far from being medical practitioners at present, but there is no limit to natural knowledge; each moment the chemical knowledge of things around us is progressing, and chemists are becoming able better to answer every question that can arise regarding the air, water, food, drink, and medicine which, by means of forces that exist in them, act upon the forces within us, and give rise to the phenomena of health and of disease; while, as if to lessen the time that might be devoted to acquiring natural knowledge, the authorities who regulate medical education, only this last spring have determined that in addition to Latin every medical man shall possess a competent knowledge of Greek, in order that the derivation of hard words may be obtained from the brain instead of a dictionary. In confirmation of this opinion he referred to the cattle plague, which in 1745 was treated by Dr. Mortimer, at that time Secretary of the Royal Society, and, therefore, one of the most scientific physicians in the country, with antimony and bleeding. In 1866, two chemists, Dr. Angus Smith, Ph.D., F.R.S., and Mr. Crookes, F.R.S., gave the only useful suggestion for combating the disease—namely, by the arrest or the destruction of the poison by chemical agents. The use of Latin in our prescriptions requires that the pharmaceutists should learn at least sufficient Latin to read what we have written. Many errors have arisen, and will arise, from the dispenser being unable to read the directions rightly. To avoid such mistakes, a portion of the time that ought to be given to the attainment of the highest possible amount of chemical acquirement, and a perfect knowledge of the English language, or some foreign language wherein he might learn the discoveries in chemistry and the improvements in pharmacy of other countries, must be devoted to the learning of Latin, in which the physician writes his directions. All our druggists in England ought to be what they are in Germany and in France—chemists capable of any analysis that might be required of them, and able to satisfy themselves and the medical men that the substances they sell are what they profess to be, pure, unadulterated chemical compounds.

Section C.—Geology.

President—Prof. A. C. Ramsay, LL.D., F.R.S., V.P.G.S.
Vice-Presidents—Prof. Daubeny, M.D., F.R.S., Professor Harkness, F.R.S., J. B. Jukes, F.R.S., Sir R. I. Murchison, Bart., K.C.B., G. C.St.S., D.C.L., F.R.S., Prof. Phillipps, M.A., LL.D., F.R.S., F.G.S.
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Committee—Professor Ansted, F.R.S., H. B. Brady, F.L.S., G. Busk, F.R.S., Handel Cossham, F.G.S., Rev. J. Crompton, Dr. C. Le Neve Foster, Captain Douglas Galton, F.R.S., R. A. Godwin-Austen, F.R.S., Rev. J. Gunn, F.G.S., Professor Harkness, F.R.S., Prof. Henessey, F.R.S., Prof. Hitchcock, J. Gwyn Jeffreys, F.R.S., Rev. S. W. King, F.G.S., E. R. Lankester, J. E. Lee, F.G.S., R. Lightbody, F.G.S., Sir J. Lubbock, Bart., F.R.S., Professor M'Chesney, W. S. Mitchell, F.G.S., G. H. Morton, F.G.S., R. W. Mylne, F.R.S., J. Rofe, F.G.S., S. Sharp, F.G.S., W. W. Stoddart, F.G.S., Hon. A. Strutt, F.G.S., Mons. Pierre de Tchihatcheff, Prof. Tennant, F.R.S., Rev. H. B. Tristram, F.L.S., Rev. H. H. Winwood, F.G.S., E. Wood, F.G.S., Major Woodall, F.G.S., H. Woodward, F.G.S., J. Wyatt, F.G.S., — Wylie, F.G.S., A. B. Wynne, F.G.S.

The President remarked that want of time and multiplicity of other avocations had prevented his following the custom which had crept in of opening each section with a prepared address. He would, however, offer some few observations on physical geology, which might help those not fully conversant with the science to understand the papers to be submitted to them. The learned professor explained at some length his views as to the formation of mountains, combating the idea that they were the result of igneous action, but arguing that they were mainly caused by denudation. Passing on to the subject of the connexion there was between the special fauna of each period and its geological formation, he reasoned against the hypothesis of sudden catastrophes and special creations as accounting for the phenomenon, but contended that the explanation was found in the assumption of large periods of time and the occurrence of breaks in the geologic record owing to faults in the strata caused by disturbing forces. The order of progress, he conceived, had always very much resembled what it was at present, for these modifications were still going on.

On the Geological Distribution of Petroleum in North America, by Professor Hitchcock.

In 1861 the United States produced 24,000,000 gallons; in 1862, 40,000,000; in 1863, 70,000,000; and in 1865, 91,000,000, valued at 4,000,000*l.* sterling. With reference to the cavities containing the petroleum, he said most of the works

appeared to derive their supplies from the gradual filter of the oil through the strata. In some cases there were large cavities in which the oil had accumulated, and in others followed dislocations of the strata. Wells which had yielded oil and become exhausted, were often found to yield again, after a rest of a few years. The oil territory in North America contained several hundred thousand square miles. In what way the petroleum was produced, he was unable to state. A member suggested that petroleum was distilled from bituminous formations by the action of heat.

Section D.—BIOLOGY.

President—Professor Huxley, LL.D., F.R.S.
Vice-Presidents—George Busk, F.R.S., Dr. Davy, F.R.S., Dr. J. D. Hooker, M.D., F.R.S., Professor Humphry, F.R.S., Sir J. Lubbock, Bart., F.R.S., Dr. P. L. Sclater, F.R.S., Dr. Thomas Thomson, M.D., F.R.S., A. R. Wallace, F.L.S.
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Committee—Spence Bate, F.R.S., H. B. Brady, F.L.S., H. W. Bates, F.Z.S., — Buckley, F.Z.S., Dr. Bennett, Professor Bentley, Dr. Baird, J. Crawfurd, F.R.S., Sir Walter Elliott, K.S.I., Dr. A. Günther, F.L.S., Dr. Hunt, J. Gwyn Jeffreys, F.R.S., E. B. Layard, F.Z.S., E. Ray Lankester, R. M'Andrew, F.R.S., Dr. Murie, Prof. Newton, M.A., F.L.S., Rev. A. Merle Norman, M.A., F.L.S., Dr. Ransom, H. T. Stainton, F.L.S., Dr. Edw. Smith, F.R.S., Dr. H. Stewart, F.L.S., H. Stevenson.

Section D.—DEPARTMENT OF PHYSIOLOGY.

Professor Humphry, F.R.S., President.
Secretaries—Dr. Spencer Cobbold, F.R.S., J. Beddard, M.D.
Committee—Dr. J. H. Bennett, Dr. Arthur Gamgee, Dr. Kelburne King, Dr. Richard Norris, Dr. W. B. Richardson, Dr. W. T. Robertson, Dr. Sibson, F.R.S.

Professor Humphry said that the animal frame stands at the summit of the great physical cone, with man at the apex, in whom the material is worked up to the point of contact with, and made subservient to the purposes of the spiritual. So complex is the animal organism, so intricate and varied are the questions in physiology, that it is apt to pass out of the range of science, and become too much a matter of speculation and an object of mystery; so that there is some danger of its being degraded by the very difficulties and features which should really place it in the highest position among sciences. Finding, as we do, that the animal machine is the resultant of all the properties or forces of matter, combined and harmonized by that most mysterious of them which we call the "vital force," we claim as fellow-labourers the workers in every division of science, and watch with interest each discovery, knowing that in whatever direction it is, it has a bearing, more or less direct, upon our own study, welcoming all, digesting and appropriating what we can.

In no other science, perhaps, do observation and reflection so distinctly stimulate and help one another. It is chiefly by clear reasoning, by induction from ascertained facts, that physiology is to be studied and advanced. Hence the study of physiology is one of the best exercises of the mind; and the greater appreciation of it as such is being shown by the admission of it, slowly and cautiously, it is true, into our educational system. It is taking its place in our Universities; and it and the other branches of natural science will be found at least as suitable instruments for cultivating and strengthening the various faculties of the mind, particularly those of observation and reflection, as any of the more favoured educational subjects. In looking to the future of Young England, and its prospects in the struggle—the hard struggle—not for existence but for position, among nations that seems to be impending, one cannot but feel that very much must depend upon the effectual development of the mental faculties. It has been by force of mind and not by force of coal, that our country has been raised to its present height. We must look to the same power to keep her in the full front of nations. It is not the bayonet, it is not the needle-gun, but the mind that conceives and the energy that makes and wields them, which gain the victory. If the old educational soil, upon which so many generations have been trained, is in some degree wearing out, it will surely be none the less productive for the introduction of new elements.

The Professor then alluded to the discovery of development by cells, a discovery which is, perhaps, second only to that of gravitation, evincing, as it does, a simple, uniform law, underlying and working out the vastly diverse forms and structures of vegetable and animal life. Surely the knowledge that the tough oak-plank, the blade of grass, the lion's claw, the contracting muscle, and the thinking brain all emanate from simple forms which, so far as we can tell, are perfectly alike, and, further, that the entire plant or animal also emanates from a single form or cell which is undistinguishable from the rudiments of its several parts, is as ful

of interest, and as suggestive of high thought as any one of the fragments of knowledge which man has worked out for himself in the whole range of physical science; and what better exercise can there be than teaching the operation of the great law of uniformity?

The microscope has lately been to physiology much what the steam engine has been to manufacture and transit. It has opened up new regions for observation, and given an entirely new directions to our thoughts. The structure of the several tissues and organs has probably been made out as far as the present means permit, and we are occupied now in investigating their mode of formation and connexion with one another. There seems much reason to think that they are more closely related, more continuous, than we have been in the habit of regarding them. There is now little doubt of the continuity of the nerve fibres and the nerve vesicles; and it is not improbable that the other parts of the nerves are continuous with the several tissues among which they ramify, with the deeper prolongation of epithelium, with the elementary structure of muscle, and with the filaments of areolar tissue. The continuity of the areolar tissues with serous, fibrous, and mucous membrane, on the one hand, and with the intimate structure of the various organs on the other, is more clearly shown; and a very general and extensive continuity is thereby established. The cornea is continuous with the sclerotic, and so with the speri sheath, and dura mater. Even epithelium, which we were wont to regard as a distinct external and easily separable sheath, is found to send its filamentary prolongations into the subjacent organs, which become blended with the areolar and nervous and perhaps with the lymphatic systems. The epithelium of the glandular tubes is in some organs undistinguishable from the cells which occupy the stigma. The blood vessels in many animals are continuous with the areolar tissues; and in all the ultimate circulation takes place through the tissues, the nutritious fluid passing freely to and fro between their interstices, and the interior of the capillaries, where capillaries are present. We are thus reminded of the fact that in their embryonic period the several structures, or the potential rudiments of them, were all blended in a homogeneous germinal mass, and we learn that though they have become differentiated they have not become separated, but retain, in their mode of connexion, the traces of their common parentage and of their early continuity. Such a blending of ultimate tissue, as a remnant of embryonic condition, assists us to explain many things, such as the transfer of impressions and what we call sympathy, that are at present difficult to understand, and is an additional illustration of the simple method by which, in nature's works, great ends are attained.

We perhaps scarcely realize and appreciate the bearings of the fact, that all the various tissues are formed from a primitive homogeneous and continuous plexus, by the formation and separation from one another of "portions," "centres," "masses," "cells," or whatever we please to call them, and their development into structure; attention has been directed almost exclusively to the formation and development of these masses and too little to their *separation;* though the latter is a process little, if at all, less important than the former, and must be effected by something analogous to what we call abruption. Indeed, the work of abruption, or hollowing out, during the embryonic state is little less active than that of secretion or building up. We are familiar with its work in the formation of the areolar tissues and cavities of bone, in the removal of the parts of the iris and eyelids that do not become developed into permanent structure; but we are not perhaps sufficiently impressed with the fact that the various cavities, canals, and spaces in the interior of the body are due to the same progress, and that the failure or arrest of it may be the cause of many of the so-called adhesions of seams and other surfaces, of the imperforate condition of canals and the union of parts that should be free. The transition from the investigation of the fine processes of the animal organism to the consideration of the forces by which they are brought about is a natural and necessary step, though it takes us into a region where advance must be slow, and where difficulties seem almost insurmountable.

It is quite clear that what we call CHEMISTRY, with its attendants, heat and electricity, plays a most important part in the animal machine; and, probably, more information as to the nature of the organic processes is to be expected from their chemical study than in any other way. We have found out that there is a very close relation between a complete atomic formula and the vital processes, the amount of chemical tension which is expressed by the former being commensurate with the character of the latter, and the amount of chemical change which takes place in the textures being commensurate with the activity of the vital processes. There seems good reason to believe that a muscular fibre is the container of a given amount of chemical force compressed by the medium of a high chemical formula, and existing, therefore, in a high state of tension, that during its construction the compressed force is set free by the decomposition of its structure—that is, by the resolution of its component elements, chiefly by a process of oxidation, to a lower formula or a state of lower tension, at the same time that heat is evolved and electrical changes take place; though the latter are not yet distinctly defined. It is impossible, therefore, to avoid the application here of the doctrine of contractile force, which is being so clearly worked out in the organic world, and which seems to be the greatest advance that has for some time been made in our knowledge of the laws of matter. We can scarcely doubt that the chemical force which is set free during the decomposition attendant upon muscular action is the equivalent of the contractile force that is evinced and of the heat that is evolved. In other words, a muscle may be regarded as the medium by which force is accumulated, rendered latent, or condensed in a condition of high chemical tension, and is, from time to time, as occasion may require, set free and converted into muscular or contractile force and heat.

It seems probable that such is the case, and we may look for the more clear demonstration of it, with some confidence, as a real gain to physiology, inasmuch as certain of the animal formations will be thus withdrawn from the mysterious region of life into the more intelligible domain of science.

But can any combination of the ordinary forces of matter ever lead to the phenomena of life? If they are proved to be correlative with the vital force it might seem that some show of probability would be given to such a view. But we must remember that for the manifestation of vital force a living being is, as far as our observation at present goes, absolutely necessary; that is, life has never been known without a living being, without a form, without a medium, for the exercise of the vital force, just as there is no manifestation of attraction, or heat, without the medium — matter — through which they act. Thus we are impaled upon the horns of the dilemma—life is not manifested without a living being or medium, and the medium cannot exist without life—a dilemma from which our knowledge of the properties of matter is unequal to rescue us; and our only refuge is in the admission of a creative power to which the medium and properties of life, in the same way as the medium and ordinary properties of matter, owe their simultaneous existence. Further observation may supply other bases for our reflection, and widen the area of our thoughts by showing that matter is endowed with properties which enable it to aggregate into living forms; but no sufficient ground for such an assumption has yet been given.

A subject for investigation nearly akin to that last mentioned, and which may, perhaps, some day tend to throw some light upon it, is the transition from life to death, a change which under ordinary circumstances takes place in the most delicate, insensible manner; so that it is impossible to say when and how life ends and death begins. He referred to the mode in which the parts of the ultimate tissue of the body become changed and cease to exist, a process so fine as to elude observation and to prove that the boundary line between life and death is hard to define. Even in the instance of the cuticle, a structure comparatively under the eye as we watch the transition of the spherical deeper components to the flattened forms of the superficial strata, and the disintegration of the latter, partly by external influences, we are at a loss to decide where living force ends. Indeed, there seems to be no point at which that can be said to take place. And, if with regard to the components of it, and the other tissues we assent to the view that their external or "formed" parts are lifeless and their internal or "germinal" parts are alone endued with living properties, we still have to ask, where is the division between the two? Where does the "germinal" or living end, and the "formed" or lifeless begin, and how is the latter done away with? Clearly it is not by an abrupt disintegration or solution, but by some slow insensible process which savours rather of atomic change than of destruction. Then, one is inclined to ask, if the passage from the living to the unliving condition be of this insidious inappreciable nature, may there not be a converse of a like kind, an insensib

origination of, or conversion into life and life's forms, going on somewhere in the far recesses of nature's womb?

Granted, therefore, for the present, that the medium, the living form, was given or created with the vital property, does it remain the same in kind through all succeeding generations? or is it capable of undergoing changes, slowly and gradually, or, perhaps, if needs be, more rapidly, so as to adapt it to various circumstances and conditions, so as, in short, to evoke, in time, the diverse forms which animal life is known to assume; or must each of those forms have been the result of a special creation similar to those which we suppose in the first instance? One might have judged this to be a question which a careful examination and comparison of the different species, and the circumstances under which they are found, would have enabled us to decide with tolerable ease and certainty. But it was found not to be so. On the one hand we see changes in each individual, whereby the complete being is evolved from the simple germ, changes that are suggestive of a corresponding evolution of the varied animal forms from one humble beginning. We find all the different animals emanating from the same point as its centre, the simple germ which presents precisely the same features in them all. We find them all carried along the same high road of development and diverging to acquire their respective peculiarities; so that certain structural types are largely traceable among them, binding them together and suggestive of a common origin. We can arrange them in gradational series, not one series, but several, of which one emanates in man. We find each animal so suited to its position, and so surely disappearing when the conditions cease to be favourable to it, and as a necessary consequence of the alteration of those conditions, as to suggest that it was modified from a common standard not merely *for* but *by* the conditions which surround it. The records of the earth's history prove this adaptation to have been the case in former times as well as now, the faunas varying in correspondence with the variations in the surface and climate and temperature of our planet; and we can clearly prove certain modifications in species to be caused by changes in the external conditions in which they have been placed. Moreover, by attention to external curiosities and selection in breeding, we can induce deviations in the offspring, and so imitate, it has been suggested, the process that goes on in nature.

These, with some other considerations, coincide with our scientific yearning to unfold the plan of the universe and trace in its growth and the development of its parts the operation of natural law. They seem to give us hints as to the mode of construction of the animal kingdom, which it is the legitimate work of physiology to gather up and weave into a consistent theory according with some new conceptions of creative plan.

But much observation must be made and much evidence accumulated before we can see our way to a theory of transmutation of species. The only valid, but it is a cardinal objection to such a theory, is the want of evidence that a change of the kind inferred really takes place, and that so little proof of it is forthcoming in spite of the attention which has, for many years, been anxiously directed to the subject. The nearly allied species tantalize us by a certain flexibility of type and by their near approach to one another; but they seem rigidly to abstain from the boundary lines; and the variations that take place seem to have no especial reference to an approximation to those lines, but rather to a certain power of acommodation to external circumstances necessary for the preservation of the species. We find considerable varieties in the human species. We do not clearly yet know how to connect even these with one another or with a common orign. Some of these are more, some less allied to the monkey; but between the lowest of the human and the highest of the monkey there is a gap, the width of which will be differently estimated by different persons, but so wide that there has never yet been any doubt to which side any specimen should be referred. Now, if the one has been transmuted from the other, how comes it that the series has been broken and the connecting links ceased to exist. The conditions are still favourable to the xistence of the man and to the existence of the monkey; why are they not still favourable to existence of the species that have connected the one with the other—we may wonder, not only that the traces of species in *past* time are not forthcoming, but that the species are not *now* living. Moreover, we do not know that any conceivable conditions, operating through any number of ears, will bring the gorilla or chimpanzee one whit nearer to man, would give them a foot more capable of bearing the body erect, a brain more capable of conceiving ideas, or a larynx more capable of communicating them. He did not think that much direct assistance has been given by the theory of *natural selection* based upon the *struggle for existence*, ably propounded and ably defended as it has been, it has dispersed some of the fallacies and false objections which beset the idea of transmutation of species, and has so placed the question in a fairer position for discussion; but it reminds us forcibly of some of the real difficulties and objections. Though artificia selection may do much to modify species, it is rather by producing varieties than by drawing away very far from the original stock. To the former there seems no limit; but the latter is stopped by the increasing unproductiveness and unhealthiness of the individuals, by the susceptibility to disease and the tendency to revert to the original type. So that increasing departure requires greatly increasing care; and we do not know that any amount of care and time would be sufficient to produce what might fairly be called a new species. The bringing about any marked change by nature's selection is shown to be very hard of proof, and has opposed to its probability the fact that the members of a species which are most unlike have the greatest tendency to pair and are the most fertile; so that we have here, in addition to the ready reversion of modified breeds to the orginal stock, a law by which the growth or perpetuation of peculiarities is prevented and a constancy given to the characters of the species. This law is more striking from its contrast with the bar that exists to the pairing of different species and the infertility of hybrids. Within a given range, dissimilarity promotes fertility. Beyond that range, it is incompatible with it.

These and other considerations have always inclined him to the opinion that modifications of animal type, occurring in nature, are more likely to be the result of external influences operating upon successive generations, influencing their development, their growth, and their maturity, than of "natural selection" and the "struggle for existence."

The slight variability of animal types through long periods, the clear manner in which many of them are worked out from one another, and which increasing investigation seems to render more and more apparent, make the prospect of proving that they are educed from one another by any of the hitherto supposed processes grow more and more distant, and the feeling arises that there must be some other law at work which has escaped our detection.

We are familiarized with the fact that in the inorganic world combinations take place only in certain definite proportions—for instance, that oxygen unites with nitrogen in one proportion, to make nitrous oxide; in a second proportion, a multiple of the first, to make nitric oxide; and so on to the fifth proportion or multiple, which gives nitric acid, and that between them, five several fixed proportions as combinations take place. So that the resultants of these and other similar combinations—the inorganic species, as we may call them—are remarkably constant and fixed in their characters. Each has its own form, as in the case of crystal, of chloride of sodium, or sulphate of magnesia, which may be broken down or dissolved, but which cannot be modified or made to approach, still less to pass into any other form.

May there not be something analogous—some corresponding law of combining proportion—presiding over living matter, educing the various forms, fixing their characters, giving them constancy—in fact, evolving and fixing the species, and preventing their transmutation?

Whatever be the law and forces which effect and regulate the evolution of species, they are probably of the same kind as those which are operating in the inorganic world. The orderly and definite manner in which forms and features and specific characters are given and preserved in the one instance may be assumed to be of the same nature as in the other; and we must probably refer the fixed animal and vegetable types to influences identical with, or similar to, those by which the forms are assigned to crystals, and the stratification is given to rocks, by which the geological epochs have been determined, and the boundaries of our planetary and solar systems have been set. One cannot but think that it may be within the power of man to work out and to comprehend, in some degree at least, the principles by which these breaks in the organic and inorganic works, constituting as they clearly do an important feature in the plan of creation, are brought about and regulated.

Let us not shrink from the free, bold, fair discussion of these and other kindred subjects, under an apprehension that they are calculated to lower the religious elements and shake the faith. That which is inevitable must be accepted. It would show a want of faith to resist it. One cause of the occasional outbursts of the *odium theologicum* is due to a fault on the side of the theologians. Not satisfied with, or distrusting, the really unassailable position on which their future stands, with its foundations deep laid in man's consciousness and God's work, they have endeavoured to raise outworks on the shifting ground of natural science, by drawing arguments from analogy, by associating special views of creation and resurrection with true religious belief, and by insisting on certain literal interpretations of the physical medium through which spiritual truth has been conveyed to us. Hence each unfolding of the material laws is liable to be regarded with suspicion, lest it should sap the foundations that have been thus unwisely propped. Religious arguments drawn from the physical world are very liable to prove two-edged swords, cutting both ways according to the manner in which they are wielded, or staffs that penetrate the hands of those that lean upon them.

We must work patiently on, not pressing hastily to conclusions which our aspirations seem to point to, but relying on careful observation and honest reasoning to give us a solution of some of the great problems which animal life presents.

Section D.—Department of Anthropology.

President—Alfred R. Wallace, F.Z.S., F.Eth.S.
Secretaries.—W. Felkin, jun., Edward Burnet Tylor.
Committee—C. Carter Blake, F.G.S., F.A.S.L., George Busk, F.R.S., Dr. R. S. Charnock, F.A.S.L., John Crawfurd, President of the Ethnological Society, Dr. J. Barnard Davis, Robert Dunn, F.R.C.S., F. R. Fairbank, M.D., Rev. F. W. Farrar, James Hunt, President of the Anthropological Society, Sir John Lubbock, Bart., D. W. Nash, Herbert Spencer, W. H. Wesley, F.A.S.L., Thomas Wright, F.S.A.

The President congratulated the audience on the inauguration of a sub-section in which all students of man, by whatever name they might call themselves, could meet harmoniously to state their views and opinions, with the sole object of eliminating truth. Anthropology the President defined as the science which contemplates man under all his varied aspects—as an animal and as a moral and intellectual being, in his relations to lower organisms, to his fellow man, and to the universe. The Anthropologist sought to collect together and systematize the facts and the laws which had been brought to light by all those branches of study which, directly or indirectly, had man for their object. They would then be in a condition to determine the special lines of investigation most needed to complete our knowledge of man, and might hope ultimately to arrive at some definite conclusions on the great problems which interested all—the origin, the nature, and the destiny of the human race.

Section E.—Geography and Ethnology.

President.—Sir Charles Nicholson, Bart., D.C.L., LL.D., &c.
Vice-Presidents.—Sir R. I. Murchison, Bart., K.C.B., D.C.L., President of the Royal Geographical Society, &c., Viscount Strangford, John Crawfurd, Esq., F.R.S., Major-General Sir A. S. Waugh, F.R.S., &c.
Secretaries.—H. W. Bates, Esq., Assist.-Sec. R.G.S., Rev. F. T. Cusins, M.A., Clements R. Markham, Sec. R.G.S., D. W. Nash, F.S.A., Thos. Wright, Esq., M.A.
Committee.—Lord Amberley, Duke of St. Albans, Col. Sir J. G. Alexander, F.R.G.S., Professor B. T. Ansted, John Arrowsmith, F R.G.S., Hugh T. C. Beavan, Sir S. W. Baker, F.R.G.S., Dr. Beke, F.R.G.S., Admiral Sir Edward Belcher, F.R.G.S., C. Carter Blake, J. Campbell, M. P. B. Du Chaillu, Dr. Cheadle, F.R.G.S., Rev. P. W. Claydon, R. Dunn, Sir Walter Elliott, K.C.B., A. G. Findlay, F.R.G.S., Captain Douglas Galton, F.R.S., Fras. Galton, F.R.S., Rev. Dunbar Heath, F. Hindmarsh, John Hogg, F.R.S., F.R.G.S., Dr. J. D. Hooker, F.R.G.S., James Hunt, Ph.D., R. H. Major, Sec. R.G.S., Viscount Milton, F.R.G.S., J. Murch, Professor Alfred Newton, M.A., Rear-Admiral Ommanney, F.R.A.S., — Oswell, Gifford Palgrave, T. Reddie, W. Spottiswoode, F.R.S., M. Pierre de Tchihatcheff, Dr. T. Thompson, F.R.G.S., Rev. H. B. Tristram, E. B. Tylor, F.R.G.S., A. R. Wallace, F.R.G.S., W. Webb, Newstead Abbey, F.R.G.S., Charles White, J.P., F.R.G.S.

An abstract of the President's address will be given next week.

On the Abyssinian Tributaries of the Nile, by Sir Samuel W. Baker.

The Nile had an interest for all, old and young, rich and poor, alike. The greatest and oldest of the world's historians was cradled as an infant upon its banks. Even to the Egyptians the Nile was an enigma. To a week almost its waters annually rose and fell, and the Egyptians, whose very existence depended, upon it looked on the stream with awe. It was a mystery, too, which seemed to resist all efforts to penetrate it. For though the Romans forced their way, under a couple of Nero's centurions, further than any civilized man had ever done since, until within the last two years, and though a

trading settlement had been founded by Mahomet Ali Pasha, in one case the way seemed to have closed up again behind the Roman soldiers, in the other the abhorrence caused by the acts of the Turks, Egyptians, and, unhappily, some few Europeans, raised such hatred among the natives as to frustrate all attempts to penetrate into the interior. Sir S. Baker explained that before exploring the source of the White Nile itself he spent a year in investigating carefully its Abyssinian tributaries; and, though at first this might have appeared like time wasted, in the end the inquiry was attended with the happiest results, for it enabled him to master the secret of the periodical overflowing of the river. He then explained the course of the river, as a whole. Of his subsequent expedition to the White Nile Sir S. Baker declined to speak at length, the account having been already published, but described very graphically his meeting with Captains Speke and Grant, for whose approach the natives had prepared him by descriptions of "two white men with some curious kind of fireworks." It was owing in a great measure to the information which they placed at his disposal, and more especially to the map which they prepared and gave him, that he was afterwards enabled to succeed as happily as he had done. Owing to the war which was raging at the time, Captain Speke was not able to pursue the windings of the river in the unexpected direction which these suddenly took, but he himself took great pains in following up and establishing the perfect accuracy of the conjectures made by Captain Speke, upon which, as he said at the time, doubts would probably be thrown on his return by somebody who knew "little of the Thames and still less of the Trent." He admitted that the instruments used in the expeditions of Captains Speke and Grant were not altogether reliable, but contended for the perfect accuracy of those he himself had carried, which were tested at Kew before his departure, and again upon his return.

Section F.—Economic Science and Statistics.

President.—Professor Rogers, M.A.
Vice-Presidents.—Lord Belper, Sir John Bowring, F.R.S., William Farr, M.D., D.C.L., F.R.S., William Felkin, F.L.S., James Heywood, M.A., F.R.S., Colonel Sykes, M.P., F.R.S.
Secretaries.—R. Birkin, jun., Professor Leone Levi, F.S.A., F.S.S., Edmund Macrory, M.A.
Committee—Samuel Brown, Rev. W. Caine, William Camps, M.D., William Enfield, F. P. Fellowes, Lord Houghton, The Mayor of Nottingham, Chas. Paget, Henry Yates Thompson, Samuel Timmins, Alderman Vickers, Joseph White, Robert Wilkinson, James Yates.

On the Classification of the Various Professions of the People, by Frederick J. Wilson.

The classification made the divisions into sixteen, and was illustrated by a beautifully-executed coloured diagram. The classification was as follows: Protection—Army, Navy, Fire Brigade; Manufacture—in materials in quantities; Pioneering—open out and map the country; Domesticity—wives, mothers, domestic servants; Government—Parliament, law; Agriculture—farming operations; Attrapancy—hunting, shooting, &c. (from *attraper*, to catch); Education—clergy, professors, &c.; Architecture—persons engaged in making a covering for shelter; Mining—digging a hole in the earth for discovery or secrecy; Literature—all persons engaged in book and journal making; Curative Art—healing; Science———; Communication—transfer of material; Fine Arts—music, sculpture, painting.

Section G.—Mechanical Science.

President.—Thomas Hawksley, V.P. Inst. C.E., F.G.S.
Vice-Presidents.—Sir W. G. Armstrong, C.B., F.R.S., J. F. Bateman, F.R.S., William Fairbairn, LL.D., F.R.S., Capt. D. Galton. R.E., C.B., F.R.S, John Hawkshaw, F.R.S., Charles Vignoles, F.R.S., J. Whitworth, F.R.S.
Secretaries.—P. Le Neve Foster, M.A., J. F. Iselin, M.A., Professor Pole, F.R.S., M. O. Tarbotton.
Committee—Robert Abernethy, Admiral Sir E. Belcher, N. Beardmore, Monsieur Bergeron, F. J. Bramwell, Wm. Carpmael, H. Dircks, J. C. Gilbert, R. W. Mylne, F.R.S., James Oldham, C.E., W. J. M. Rankine, LL.D., F.R.S., William Sissons, Sir Andrew Waugh, R.E.

On Improvement in Pontoon Trains, by George Fawcus.

This paper comprises a further development of two subjects previously submitted to the Mechanical Section of the British Association, and fully detailed in their reports, 1863—viz.:—

1. Boats of peculiar construction, specially adapted for pontooning, with their displacement largely increasing as their immersion increases. Both ends are alike for dividing the water, whichever way the tide or current may be.

2. Carriage or waggon to go either way, with all wheels of uniform diameter, adapted to pass up and down steep inclines and round intricate turnings with facility. The materials for the construction of the bridge are all packed independently of each other, so that they can be used in any order, or simultaneously, thus saving time and avoiding confusion. Wherever practicable, the fittings are made reversible and interchangeable, and all the other parts can be combined with tin cylinders or other substitutes for boats. The lashings securing the load increase the stability of the carriage.

Miscellanea.

The following statistics of books sold in America relating to the war are given by the *Round Table*:—

Headley's History, 1st and 2nd vols.	$682,500 00
Greeley's History, 1st volume	650,000 00
Kettel's History	330,000 00
Nurse and Spy	440,000 00
Field, Dungeon, and Escape	266,500 00
Four Years in Secessia.....	105,000 00
Life and Death in Prisons	110,000 00
	$2,584,000 00

The number of volumes which went to swell this little amount was eight hundred and twenty-one thousand, which is about double the sale of "Uncle Tom's Cabin," and four times that of Tupper's "Proverbial Philosophy."

The same journal has this letter on the word "Copperhead:" "Dear Sir,—I think that the term 'copperhead' was used to some extent shortly *before* the civil war. I saw the following account of its origin in a newspaper at that time: An editor in a city where a convention of the opposite party was in session, ridiculed the 'conservatism' of its members by saying that each of them had come up to it with his head plated with copper, to insure himself against the entrance of any new ideas. This piece of satire took well, and gave rise to the name. It was not until after this had become current that the copper badges, mentioned by 'Fieldwood' in a previous number of the *Round Table*, were worn. However the term may have originated, there can be no doubt that the meaning given it in Mr. Wheeler's definition is that which it has had in the minds of almost all. This is evident from the newspaper literature of the period, as well as from the fact of painted figures of snakes having frequently been carried in processions, as typical of political opponents. The reference to 'striking without warning' is also familiar to every one. The word will have a historical interest, on account of the great effect with which it was used, and as showing the *animus* of the times; and it is well that the true idea connected with it should be preserved, as has been done by Mr. Wheeler in his dictionary. —J. B. M."

The twenty-first official report of the Royal Insurance Company presents some features of the greatest importance. During the last two or three years fire losses have been specially disastrous to all offices, but the Royal has *not*, luckily, had so full a quota of losses as some other companies, though the total of 1865 amounted to 318,946*l.*, or 77 per cent. of the premiums received. The report declares there is "undeniable evidence that the premiums charged upon fire insurance is at present unremunerative;" consequently the rates *must* be raised, and the public will have to be prepared for this. Nor does the advance in the number of insurances quite correspond to what was expected from the reduction of duty, for a portion of the period, to one half of its former amount. Still the Royal, again, was highly favoured, for it has had the largest share of augmentation. The condition of the Life Department affords perfect satisfaction. The Chairman said, "We are advancing every year in the issue of new policies, at a rate surpassing that of most other companies; and, judging from past experience and present progress, we may fairly anticipate the addition of 100,000*l.* annually for the next ten years to our present accumulation of 740,458*l.*, so that it is not beyond the bounds of reasonable probability that at the end of that time, the Royal will hold, in its Life funds alone, not much less than two millions sterling."

The sale of the Fossil Bones of the Megatherium, Glypotodon, and other animals from the neighbourhood of Brazil, by Mr. J. C. Stevens, which was announced for last Tuesday, has been postponed till the end of next month.

One of the peculiar features of present German life (says a correspondent) is the flourishing state of the Training Colleges for young ladies. They are called "Lehrerinnen Seminare," and are to be established in almost all the principal towns of Germany, and especially of Prussia. The Model Institutions that already exist are those of Berlin, of Droyssig in the province of Saxony, of Posen in the province of Posen, and of Grandenz in the province of Prussia. These have done much good in affording not only a superior education to girls, but also in placing before them the possibility of rising in social status and enjoying the fruits of both a useful and an honourable position. The greater number of German ladies' schools are public, not exactly supported by Government, but by the Municipalities of the different towns; for all Germans agree that all public schools—those for young ladies as well as men—are much more uniform, and allow a better and cheaper education, when established according to fixed regulations issued by Government, and when inspected by Government inspectors, than do private schools of the same kind. These ladies' schools, "externats," as French people might call them, are destined for the education of young ladies up to fifteen years. The Training Colleges take them in after some two years' stay at the houses of their parents, at about seventeen years of age, and impart, as it were, a finishing education, but teaching systematically, at the same time, the training of children in the lower and lowest colleges of girls' schools. After a two years' course, the governesses pass an examination before a Government inspector in all the branches of a superior education, and difficult questions are put to them in German Grammar and Literature, History, Pedagogics, Geography, Natural Philosophy, in the French Language and Literature, in the English Language and Literature, &c. If they pass it successfully, they have a claim to Government places in ladies' schools, or may act as governesses in gentlemen's families, without being interfered with by any local school inspector. In general, they reside with gentlemen-farmers, and give lessons to their children before being sent to town. If the gentleman happens to be a widower, they have a chance of marrying him, and many of them prove, after marriage, as useful housekeepers as they were learned professors before.

We have just received a letter from a German friend, who is staying with the Prussian army in the capacity of a physician. He speaks, among other things, of the amusements of the Prussian officers. "As other sports were not at hand—hunting, besides, would have infringed the strict orders from head-quarters to save the property of the enemy—some jolly fellows hit upon the idea of putting up a kind of stage, and acting some plays. The favourite has been one of the finest German comedies, if not the finest of all, old Lessing's 'Minna de Barnhelm; or, a Soldier's Fortune.' There is, in fact, no author to be compared with Lessing, even in regard to comedies, excepting only Hans Sacht. The similarity of the circumstances of the play and those under which the present war was fought, gives it an entirely new interest to German readers and spectators, and Prussian officers like to perform it in the camp. The argument of the play is as follows: The Prussian Major de Tellheim, the type of a noble-minded Prussian officer, is engaged to a Saxon lady, Minna de Barnhelm. After the termination of the Seven Years' War, he is suspected of having been bribed by Saxon authorities, when, on the contrary, he had paid out of his own purse a war contribution which they had not been able to afford. Tellheim, of a proud temper, has withdrawn from his comrades, and lives in a second-rate inn at Berlin, in the sole company of his much-devoted footman Fust. He has given up his betrothal, unwilling to involve his lady love in all the difficulties of his position. A wedding-ring that Tellheim is forced to pawn with the landlord, makes him known to Minna, who has taken lodgings in the same hotel. She pretends that she has been disinherited by her uncle on account of her intended marriage with Tellheim, and he, on hearing this, is of course quite ready to let her share his fortune. This resolution is taken in the very nick of time, for a letter drops in containing the decision of the tribunal, and a private note from the great King Frederick, by which Tellheim's innocence is proved, and his honour re-established entirely. The tenour of the play is much relished by the Prussian officers, though in their present victorious career, they would probably not now like acting Tellheim in life."

On Monday the annual meeting of the British Archæological Association was held at Hastings, and was welcomed by the Mayor and Corporation. The Earl of Chichester, the President, delivered the inaugural address, and Mr. T. H. Cole gave

an account of the Castle, on the spot. It was built in the reign of William the Norman, and occupies the site of a more ancient fortress, covering about an acre and a-half. Of the Priory nothing remains, and the church of the Holy Trinity is built upon the site of an ancient monastery of the Black Monks of St. Augustine. The old walls which once protected the town on the sea side were traced, the Roman remains on the East-hill were visited, and also the house in All Saints-street, in which Sir Cloudesley Shovel is said to have been born. Papers were read by Mr. Edward Levien, M.A., on St. Mary's Collegiate Church in Hastings Castle; by Mr. M. A. Lower, M.A., on the Battle-field of Hastings; by Mr. W. J. Grant, on Hastings Castle; and by Mr. T. H. Cole, M.A., on the antiquities of the town generally. On Tuesday a party went to Rye and Winchelsea, the latter of which was "shown" by Mr. R. C. Stillman. It derived its name from Wincheling, son of Cissa, who was the founder of the South Saxon kingdom. The *Times* has an amusing blunder in its report of Wednesday, saying, "In 1066 William the Norman landed here." This would, of course, mean on his invasion of England. On that occasion he landed at Pevensey. It was in 1067 that he landed at Winchelsea, on the 6th December, in order to put down the Western insurrection. Henry II. also landed here in 1188. In 1266 the town was stormed by Prince Edward, and young Simon de Montfort was defeated. In 1287 the old town of Winchelsea was swallowed up by the sea on the eve of St. Agatha. The town afterwards became the place of import for French wines, for which massive crypts were built, and in the time of Henry VI. it was one of the chief ports of embarcation for France. Henry VIII. built the Castle of Camber, the ruins of which are still standing. In the church are three altar tombs of the time of Edward I., called Crusaders, or Knights Templars, one of whom is supposed to be a member of the Oxenbridge family. Then there is a convent of Grey Friars, of which the choir, with some beautiful arches and windows, still remains. On Wednesday Bayham Abbey and the Palace of the Archbishop of Canterbury at Mayfield were visited. Mr. E. Roberts was guide to the latter. It was erected by St. Dunstan in the tenth century. Provincial synods were held in 1332 and 1362, and Archbishops Meopham, Stratford, and Islip died there. Queen Elizabeth visited Sir Thomas Gresham at Mayfield, and Thomas May, the historian of the Long Parliament, was born in the palace in 1595. The palace and manor were surrendered by Archbishop Cranmer to Henry VIII. in 1545, and the King granted the estate to Sir Henry North. It subsequently became the property of Sir Thomas Gresham. The principal object deserving notice in the ruins of the old palace is the magnificent banqueting hall, which is 70ft. long and 30ft. wide; the three arches which formerly supported the open roof are still remaining entire. The accidental falling of some plaster at the upper end of the hall discovered a mitre formed of roses, carved in stone, which is supposed to have been the spot where the Archbishop's chair was placed. The grand staircase, leading to what were the principal apartments, is a massive piece of stonework, and leads into a large wainscoted room, wherein are deposited the celebrated reliques of St. Dunstan—namely, his sword, an anvil, and hammer. The east-end of the palace is now used as a farm-house.

At the session of the French Academy on August 20, M. Guyon read an interesting account of a Lemming (*Lemmus Norwegicus*, R.) which he had kept alive from the 15th August, 1863, to the 18th June, 1864, and which was, after all, accidentally killed. The animal was never tamed. It left its den towards night, and re-entered it towards dawn. It also came out at certain hours during the day for its food, and also to drink water, of which it was extremely fond. But even by the side of the food a little cage full of moss was always placed, and if the dish was not exactly to its liking, it retired until something more to its taste was provided. Sometimes it would carry a portion of it into the cage, a fact which M. Guyon thinks enough to prove that this Lemming, like the others of its genus, lays up provisions for the winter, contrary to the general opinion of travellers. When awake, it was perpetually gnawing at the doors, the wainscoting, and even iron bars. If interrupted in this occupation it would utter loud cries, and pour forth a copious saliva on anyone who tried to seize it. It manifested a disposition to attack a bird which flew about the apartment in which it was kept, but perhaps this was the effect of curiosity alone. It exhibited sometimes a certain amount of *sociability*. If its own habitual cry of *cui-cui* was imitated, it would come forth, but seldom advanced towards the person who spoke, and then it remained at some distance, nor did it ever approach the fire throughout the winter.—M. Le Verrier presented the fourth volume of the "Works of Alphonso X. of Castille," edited by M. Rico Sinabas. In this volume are united the five books on ancient clocks. There are two treatises on the method of constructing solar clocks; two books on mechanical clocks; and there is also a long account of the Water-clock, or Clepsydra of Alphonso. The fifth volume is in the press.—M. D'Archaic exhibited the remains of the reptile lately discovered by M. Frossard in the upper coal-series. He considered that the types of the Ganocephali and those of the Layrinthodonts which preceded the Thecodonts of the Permian period and whose organization brings them near the lowest batrachians, and even certain fishes, justify the idea of development and the gradual improvement of beings during the geological series, whether we consider organized nature in its totality, or one class of vertebrate animals by itself.—M. Albert Gaudry read a long memoir, describing the same fossil at length. M. Laussedat described the occultation of Saturn by the moon on the evening of the 16th of last month. But he seems to have been very unfortunate in the instruments at his disposition, and also in the fact that the heavens were covered with clouds immediately after the disappearance of the planet, so that he could not observe its emersion.

Professor Longfellow's translation of Dante is nearly ready. These two sonnets of his are from Francesco de Medrano, and were published in 1833 with some translations from the Spanish, and have never been re-printed:—

ART AND NATURE.

The works of human artifice soon tire
The curious eye; the fountain's sparkling rill,
And gardens, when adorned by human skill,
Reproach the feeble hand, the vain desire.
But oh! the free and wild magnificence
Of nature, in her lavish hours, doth steal,
In admiration silent and intense,
The soul of him, who hath a soul to feel.
The river moving on its ceaseless way,
The verdant reach of meadows fair and green,
And the blue hills that bound the sylvan scene,
These speak of grandeur, that defies decay—
Proclaim the Eternal Architect on high,
Who stamps on all his works his own eternity.

THE TWO HARVESTS.

But yesterday these few and hoary sheaves
Waned on the golden harvest; from the plains
I saw the blade shoot upward, and the grain
Put forth the unripe ear and tender leaves.
Then the glad upland smiled upon the view,
And to the air the broad green leaves unrolled,
A peerless emerald on each silken fold,
And on each palm a pearl of morning dew.
And thus sprang up and ripened in brief space
All that beneath the reaper's sickle died,
All that smiled beauteous in the summer tide.
And what are we?—a copy of that race,
The later harvest of a longer year!
And oh! how many fall before the ripened ear!

A short time back a paper was read before the French Academy, on the chemical composition of the waters of the Dead Sea," by M. Terreil, who accompanied the Duc de Luynes to Palestine last year. Amongst other results, he found that neither lithiumn or cæsium was present. We do not intend giving a notice of the paper, but merely wish to point out one or two absurd blunders made in reporting the memoir. A short account appeared in *Galignani* which was copied by the *Times*, but "Terreil" had been changed into "Terrell," and two new substances were mentioned—viz., lithine and oxsium. The paragraph was copied from the *Times* into the *Lancet* of last week, with a few more alterations. The author was now M. Jerrell, the Duc de Luynes became the Duc de Juyues, and oxsium became essium. It is singular that the leading journal, though it consistently carries out a crotchetty system of spelling in a few instances, such as "diocess," "chymistry," &c., no sooner treads on scientific ground than it flounders about most hopelessly.

Amongst the numerous objects of interest which Switzerland intends to contribute to the Paris Exhibition next year, we find a collection of articles obtained from "Pfahlbanten" of the lakes of Neufchatel, Berne, Geneva, and Constance, by Professor Keller, Heer, and others. A large model of a lake dwelling is also in course of construction, and is intended to form a part of the exhibition.

It may be interesting to know that the house in which the great Cassini was born is still in existence, and is now inhabited by a descendant of the family, General Maraldi, a retired officer of the Engineers. Giovanni Dominico Cassini, generally known as Cassini I., was born at Perinaldo, a small hamlet in the district of San Remo, near Vintimilia, a few miles from the French frontier. The successive occupants of the house have respected all the articles which belonged to the great astronomer. His furniture, instruments, and books are still in existence, and the present representative of the family which gave four eminent astronomers to the world, takes a pleasure in showing the relics to all who take an interest in such subjects.

At the last meeting (Friday, Aug. 24) of the Quekett Microscopical Society, Ernest Hart, Esq., President, in the chair, a paper was read by Dr. Tilbury Fox, "On the Vegetable Parasitism of Living Beings," of no little interest, as bearing upon the "blue mist" question raised by Mr. Glaisher. It has been suggested that the blue mist may be due to the presence in the atmosphere of the spores of low forms of vegetable life. Dr. Fox's paper embraced an account of the life and influence of minute fungi in general; showed that the presence of cell structures was to be expected in all situations to which the air has access, their discovery hitherto having been delayed by the absence of observation and the want of a sufficiently high-powered microscope; they are especially prevalent at such seasons as the present, in which rusts and mildews have abounded. These germs are very light, and can be easily wafted by the air from place to place; they seem not only to be found in spots accessible to the external air, but also deep in the tissues of living things, being carried inwards bodily by the growing tissues, in the same way that particles of charcoal get into the interior of the intestinal vessels running to the liver; in ordinary "ringworm," the fungi which are the cause of the disease, according to Dr. Fox, get into the hair follicle, reach the root, and are carried up by the growing shaft into the body of the hair. In like way, rusts effect an entrance within the leaves of grown-up plants, but at a very early date, through the first tender cotyledonous leaves. We are led to suppose that the entrance of mildews and rusts is effected oftentimes at a very early date, and that the germs lie dormant, often for a long time, till the favourable opportunity arrives for their development. Fungi never appear to flourish on healthy surfaces, but always on those which belong to devitalized beings, and only constitute disease when they are developed to an excessive amount. The author entered into the question of the polymorphism of fungi, and the effects they produce in disease, showing that these are chemical, mechanical, and vital. After speaking especially of ringworm, he concluded—and this is the interesting point in reference to the "blue mist"—that the prevalence in undue amount of microscopic fungi is always coincident with that of epidemic diseases; that the two could not be regarded as cause and effect, but were both helped out by the same influence. Whatever debilitates man renders him more liable to epidemic disease, and whatever induces an unhealthy state of vegetation, favours the rapid development upon it of fungi such as constitutes rusts, moulds, and mildews, but these do not seem to be capable of producing anything like *epidemic* poison, which is probably not vegetable in nature. The existence, then, of the "blue mist," supposing it to be due to vegetable germs, can only be looked upon as a coincidence *quoad* cholera.—Mr. M. C. Cooke related many instances in proof of Dr. Tilbury Fox's opinion, that the germs of parasites enter the tissues of living plants at a much earlier age than is generally supposed, and that fungi will not flourish on a healthy surface. Several other speakers followed, and a second paper was read by Mr. N. Burgess, "On a New Plan for Putting up Microscopic Objects," by which the whole area of large specimens might be exhibited on the same slide.

Some extraordinary attempts at metre occur in the "Public School Latin Primer" which all the Head Masters of all the Public Schools will scarcely explain away. Here is a Hexameter, intended to teach prosody:—

Seu voce in eadem
J sŭbit, x, aut z; sic Ajax, axis, Amazon.

The last syllable in "subit" is marked short, we suppose, in mockery. Surely, "sequitur, x, z" would have done as well? Then, again:—

Nec minŭs m post g; tegmen quod mon strat et agmen.

Here "Sic quoque," or "Semper" would have saved a second false quantity.

THE *Round Table* gives us this :—

AT BALAKLAVA.

"Charge !" rung a voice
Along the waiting lines,
Like sudden wind
That strikes the forest pines
And then drops dead upon the leaves it stirred ;
So fell with a dead sound that cruel word.
Charge ! why 'twas wild !
Stern chieftains held their breath—
To make the braves of Albion
Charge the realms of Death !
"Charge !" rung that voice along the waiting ranks,
Then scabbards clashed against the chargers' flanks,
Then through the opening made
Rushed dauntless, undismayed,
The flower of England's chivalry—
The gallant Light Brigade !
"Charge !"
And they charged, O God ! thro' iron rain,
Through bursting shells and hissing balls,
Even to the Russian's fiery walls.
Braid them a wreath !
Behind they left a sickening train
Of heroes, mangled, dying, slain !
Braid them a wreath !
On, through scorching sheets of flame !
On, where the mouthing cannons flashed !
Where hand-grenade and rocket crashed—
On, through sulphurous cloud and shell,
Into the purple heart of hell !
On, as if to victory they dashed
Instead of death ! On ! on they came
To immortality, and fame
That mocks the little tyranny of death !
O Britons ! when your lips shall boast
Of fields and sceptres you have won,
Of Waterloo and Wellington !
Oh, honour and revere them most,
The flower of chivalry ye lost
At Balaklava !
And when ye pour the blood-red wine
Freely as 'twere on mountain flood—
When chalices and hearts are brimmed,
O Britons ! let your eyes be dimmed.
For free as wine ran martyr blood
At Balaklava !
Oh ! who in after times can say
One man was bravest in the fray ?
For all were heroes on that day
At Balaklava ;
And "Light Brigade" shall deathless be
Upon the scroll of History,
And on the lips of Poesy !

SIR WM. V. GUISE, Bart., President of the Cotteswolde Naturalists' Field Club, and the Rev. W. S. Symonds, President of the Malvern Club, early in July visited the celebrated bone caves of Furfooz, near Dinant, in Belgium, where the strange human jaw, described in THE READER, July 28, was discovered by Dr. Dupont, of Dinant. Mr. Symonds has lately read a joint paper, by Sir Wm. Guise and himself, before the Cotteswolde, Malvern, and Woolhope Field Clubs, on the Physical Geology of these Caverns on the River Lesse. It is the opinion of these gentlemen that the geological period of the entombment of the human jaw, with the remains of the extinct animals with which it was associated, may be assigned to the epoch known to geologists as the *Low level drift period* of Prestwich, a period recent in a geological sense, but enormously remote when measured by *time*, for the cold of the Glacial epoch was not altogether passed, and the extinct mammalia were still in existence. It was the period of the deposition of the old river drifts of Menchecourt, near Abbeville, which contain their human flint implements, interbedded with the bones of the Mammoth and Rhinoceros ; the period of the deposition of the ancient river beds near Salisbury, and other parts of England, which teach the same history ; and also, they believe, of the English bone caverns.

THE first year's publications of the Early English Text Society are now out of print. Five hundred copies only of the texts of the first two years, 1864, 1865, and part of the third, 1866, have been printed, and of these each editor has had fifty of his own work. Of the texts now printing 750 copies have been ordered, and if readers of our old literature know what they are about, this number ought soon to be exhausted too. Eleven or twelve texts a year for a guinea should tempt even a stockbroker to buy them as an investment, as Professor Morley says.

WE have received the following letter : "Sir,—In illustration of your reviewer's remark that *Cotgrave* would yield some of those odd double words, I beg to enclose one from him, *why-waw*, not noted by Mr. Wheatley as a substantive ; and also from other sources two earlier quotations for *hurly burly* :—Why-waw sb. : Fariboles f. Trifles, nifles, flim-flams, *why-wawes*, idle discourses, fond tatling, tales of a tub, or of a roasted horse (1611, Cotgrave). Hurly burly :—

Thus in *hurly burly*, from pillar to poste,
Poore Haphazard daily was toste.
(1575. R. B. *Appius and Virginia*).

Onomatopeia, when we invent, devise, fayne, and make a name intimating the sound of that it signifieth, as *hurly burly*, for an uprore and tumultuous stirre (1577. Hy. Peacham. *The Garden of Eloquence*).—CAMBRIDGE."

MESSRS HURD and HOUGHTON, of New York, announce "Spanish Papers, and other Miscellanies, hitherto unpublished or uncollected," by Washington Irving. The book will be in two volumes, and most of the matter is now first printed from the original MSS. The first volume contains "The Legend of Don Roderick," "The Legend of Count Julian and his Family," "The Legend of Pelayo ;" and other Spanish subjects. The second consists of sketches and reviews.

MESSRS. SAUNDERS, OTLEY, AND CO. announce for early publication an important work on the Universities' Mission to Central Africa, by the Rev. Henry Rowley, one of the two surviving members of Bishop Mackenzie's clerical staff, giving a narrative of the expedition from first to last, and illustrated by maps and numerous engravings. This book will throw fresh light on many points.

"THE race for Wealth," now nearly completed in *Once a Week*, will be published in a few days in a separate form ; and it will bear on its title-page, not "F. G. Trafford," but the author's real name, Charlotte Riddell.

MR. MURRAY has supplied a want with his new "Handbook for the Lakes—Westmoreland and Cumberland." There is a great deal to interest travellers in those counties besides the lakes and mountain scenery. But this is not to be found in any existing guide-book. Perhaps the great charm of this "Murray" is that the district is treated exactly like a foreign country. Descriptive writing is altogether avoided. We read on, gathering information at every line, and wonder we have not made up our minds before to "do" Westmoreland and Cumberland as well as the Eifel or Saxon Switzerland. There is still time this year for those who feel so inclined.

MESSRS. LONGMANS announce as in preparation, a Collection of the "Ballads and Legends of Cheshire ;" — "An Encyclopædia of Architecture, Historical, Theoretical, and Practical" (illustrated with more than 1,000 wood engravings), by Joseph Gwilt ; a new edition, with corrections and additions by Wyatt Papworth, Fellow of the Royal Institute of British Architects ; and above 120 new engravings by O. Jewitt ;—A new Edition of Dr. Ure's well-known "Dictionary of Arts, Manufactures, and Mines," chiefly rewritten and greatly enlarged, under the editorship of Robert Hunt, F.R.S., Keeper of Mining Records, &c., assisted by gentlemen of eminent scientific acquirements ;—"The History of Philosophy from Thales to the Present Day," by George Henry Lewes. The Third Edition, partly rewritten and greatly enlarged. Vol I., "Ancient Philosophy," Vol. II., "Modern Philosophy ;"—"Some Account of the Life and Opinions of a Fifth-Monarchy Man, chiefly extracted from the Writings of John Rogers, Preacher," in one volume, crown 4to, edited by the Rev. Edward Rogers, M.A., Student of Christ Church, Oxford, to be printed by Messrs. Whittingham and Wilkins in the style of the period to which the writings refer ; —"Useful Information for Engineers," by William Fairbairn, C.E., LL.D., F.R.S., F.G.S. Third Series ;—"Sound," by Professor Tyndall ; —"The Wild Elephant, its Structure and Habits, with the Method of Taking and Training it in Ceylon," by Sir J. Emerson Tennent, LL.D., F.R.S., &c., 1 vol., illustrated ;—"The Art of Fishing on the Principle of Avoiding Cruelty," by the Rev. Oliver Raymond, LL.B. For September, "Demonstrations of Microscopic Anatomy : a Guide to the Examination of the Animal Tissues and Fluids in Health and Disease, for the use of the Medical and Veterinary Professions." From the Practical Course of Physiology and Histology delivered by Dr. Harley, Professor in University College, London ; Edited by G. T. Brown, late Veterinary Professor in the Royal Agricultural College, Cirencester. This work is in the press, and will be largely illustrated ;—"A New Greek Classical School Book," by the Rev. H. Musgrave Wilkins, M.A., Fellow of Merton College, Oxford, entitled *Scriptores Attici*, is expected to be ready ;—"Julius Cæsar, a Series of Lectures delivered in the Sorbonne in 1844 and 1863," by M. E. R. Saint-Hilaire, Professor of Ancient History ; translated from the French ;—And Vol. 1 of "The Elements, an Investigation of the Forces which determine the Position and Movements of the Ocean and Atmosphere," by William Leighton Jordan, in 2 vols., royal 8vo ;—"The Cabinet Lawyer," an entirely New Edition (being the twenty-second). This Edition will comprise the several supplements to the preceding editions incorporated, as well as the whole of the Statutes and Legal Decisions to Michaelmas Term, 29 and 30 Victoria (Session 1866) ;—"The Scientific and Literary Treasury," by Samuel Maunder, thoroughly revised by James Yate Johnson, Corr. M.Z.S. ;—"The Reign of Elizabeth, Vols. III. and IV.," being the ninth and tenth volumes of the History of England from the Fall of Wolsey to the Death of Elizabeth, by James Anthony Froude, M.A., late Fellow of Exeter College, Oxford ;—"The Life and Correspondence of Richard Whately, D.D., late Archbishop of Dublin," by Miss E. J. Whately, in 2 vols., 8vo, with a Portrait ;—A New Work by Mr. C. R. Weld, entitled "Florence the New Capital of Italy," in 1 vol., post 8vo ; being an account of the Author's residence in Florence during the winter of 1865—66, and illustrated by several Engravings on Wood from the Author's drawings ;—A New Work by the Author of "The Recreations of a Country Parson," entitled "Sunday Afternoons at the Parish Church of a University City," by "A. K. H. B." ;—Miniature edition of Macaulay's "Lays of Ancient Rome," illustrated by Scharf ;—An Illustrated edition of Miss Ingelow's Poems ;—"Our Sermons," by the Rev. Richard Gee, M.A. Oxon, Vicar of Abbot's Langley, and Rural Dean ;—"The Acts of the Apostles, with a Commentary, and Practical and Devotional Suggestions for Readers and Students of the English Bible," by the Rev. F. C. Cook, M.A., Canon of Exeter, &c., late one of Her Majesty's Inspectors of Church Schools ;—"Commentary on the Gospel according to St. Luke," by J. Stark, M.D., F.R.S.E., Author of "The Doctrine of the Trinity," &c. ;—The fourth volume of Mr. Eyre Evans Crowe's "History of France from Clovis and Charlemagne to the Accession of Napoleon III. ;"—"Occasional Essays," by Chandos Wren Hoskyns, Author of "Talpa, or Chronicles of a Clay Farm ;"—"Animal Magnetism and Magnetic Lucid Somnambulism," a Prize Essay, by Edwin Lee, M.D. For November, "An Introduction to the Study of National Music, comprising Researches into Popular Songs, Traditions, and Customs," by Carl Engel, Author of "The Music of the Most Ancient Nations ;"—"Sacred Music for Family Use, a Selections of Pieces for One, Two, or More Voices, from the best Composers, Foreign and English," edited by John Hullah, Professor of Vocal Music in King's College and in Queen's College, London ;—"Notes on the Folk-Lore of the Northern and Southern Counties of England and the Borders," by William Henderson, with an Appendix on "Household Stories," by the Rev. S. Baring-Gould, Author of "Iceland, its Scenes and Sagas," "Post-Mediæval Preachers," &c. ;—"A Manual of English Literature, Historical and Critical, with an Appendix on English Metres," by the Rev. Thomas Arnold. Second Edition ;—"Part Music, Sacred and Secular, for Soprano, Alto, Tenor, and Bass," edited by John Hullah, Professor of Vocal Music in King's College and in Queen's College, London. New Edition, with Pianoforte Accompaniment. Also as nearly ready, "The Comparative Anatomy and Physiology of the Vertebrate Animals," by Richard Owen, F.R.S., D.C.L., &c., Superintendent of the Natural History Deparments, British Museum. Vol. III. This volume, completing the anatomy of the class *Mammalia*, will complete the work ;—"Outlines of Physiology," by John Marshall, F.R.C.S., Surgeon to University College, London, and Lecturer on Anatomy in the Science and Art Department, South Kensington ;—"A Student's Manual of Modern History," carefully revised throughout, and continued by Charles Duke Yonge, Author of the "History of the British Navy ;"—"The Aneid of Virgil," Translated into English Verse by Professor Conington, in 2 vols. ;—"Ciceronis Epistolarum Delectus," by E. St. John Parry, M.A., Head Master of Leamington College ;—"An Elementary German Grammar," by C. W. F. Fischer-Fischart, Second Master in Archbishop Holgate's Grammar School, Old Malton, Yorkshire. And for the end of the year, "The Commercial Year-book for 1867," by Frederick Martin, Author of "The Statesman's Year-book," and at the same time, the "Commercial Hand-book of France," by the Same.

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